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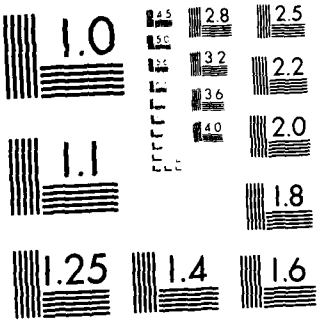

INSTALLATION RESTORATION PROGRAM

Phase I
Records Search

Ohio Air National Guard
Rickenbacker Air National Guard Base
Columbus, Ohio

Hazardous Materials Technical Center
June 1987

This report has been prepared for the National Guard Bureau, Washington, DC, by the Georgia Aviation Technical Center for the purpose of aiding in the administration of the Air Force Installation Restoration Program.

INSTALLATION RESTORATION PROGRAM
PHASE I - RECORDS SEARCH FOR

OHIO AIR NATIONAL GUARD
RICKENBACKER AIR NATIONAL GUARD BASE
COLUMBUS, OHIO

June 1987

Prepared for

National Guard Bureau
Washington, DC 20310

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Contract No. DLA 900-82-C-4426

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EXECUTIVE SUMMARY

A. INTRODUCTION

The Hazardous Materials Technical Center (HMTC) was retained in May, 1986 to conduct the Installation Restoration Program (IRP) Phase I - Records Search of the Rickenbacker Air National Guard Base (ANGB), Columbus, Ohio, under Contract No. DLA 900-82-C-4426 (Records Search). The Records Search included:

- o an onsite base visit including interviews with 23 base employees conducted by HMTC personnel on 19-22 May 1986;
- o the acquisition and analysis of pertinent information and records on hazardous materials use and hazardous waste generation and disposal at the ANGB;
- o the acquisition and analysis of available geologic, hydrologic, meteorologic and environmental data from pertinent Federal and State agencies; and
- o the identification of sites on the ANGB which may be potentially contaminated with hazardous materials.

B. MAJOR FINDINGS

The major operations of Rickenbacker ANGB that have used and disposed of hazardous materials/wastes include aircraft maintenance; aerospace ground equipment (AGE) maintenance; liquid fuels maintenance; transportation maintenance; transportation paint shop operations; power production; machine shop operations and flight simulation. The operations involve such activities as corrosion control, nondestructive inspection (NDI), fuel cell maintenance, engine maintenance, and pneudraulics. Varying quantities of waste oils, recovered fuels, spent cleaners, strippers, solvents, and other hazardous wastes were generated and disposed of by these activities.

Interviews with 23 base personnel and a field survey resulted in the identification of 27 potential disposal and/or spill sites at the ANGB. Twenty-two of the sites are potentially contaminated with hazardous wastes and follow-up IRP work is recommended at these sites.

The following is a complete list of the sites identified at the ANGB:

Site No. 1 - Hazardous Waste Storage Area, Building 560,

Site No. 2 - JP-4 Bulk Storage Tank Farm,

Site No. 3 - JP-4 Pumping Station No. 4,

Site No. 4 - JP-4 Pumping Station No. 5,

Site No. 5 - Lateral Safety Zone Spill Area,

Site No. 6 - Underground Storage Tank at Base Filling Station,

Site No. 7 - No. 2 Fuel Oil Tank Area at the Transmitter Station,

Site No. 8 - Storm Sewer Grate Paint Dump Location,

Site No. 9 - Salvage Yard, Facility No. 906,

Site No. 10 - Location of JP-4 Fuel Line Rupture,

Site No. 11 - Ruptured Fuel Line Adjacent to Building 884,

Site No. 12 - Old Drum Storage Area,

Site No. 13 - RB-47 Crash Site,

Site No. 14 - KC-135 Crash Site,

Site No. 15 - Fuel Dump Pit at Southwest End of Runway,

Site No. 16 - Fuel Dump Pit at Northeast End of Runway,

Site No. 17 - Old Entomology Laboratory,

Site No. 18 - Pesticide Storage Building, No. 412,

Site No. 19 - North Coal Pile,

Site No. 20 - South Coal Pile,

Site No. 21 - Leaking Drum and Oil Change Area at Water Treatment Plant,

Site No. 22 - Heating Plant Lube Oil Drum Storage Area,

Site No. 23 - Fire Training Area,

Site No. 24 - Sanitary Sewage Treatment Plant Sludge Beds,

Site No. 25 - Storm Drainage Ditch System,

Site No. 26 - Electrical Transformer Storage Yard, and

Site No. 27 - Drainage Ditch Near Landfill.

Site Nos. 2, 3, 4, 5, 6, 7, 10, 11, 13, 14, 15, 16, and 23 involve releases of JP-4 or other fuels. Site Nos. 1, 9, 12, 22 and 26 are hazardous waste and hazardous material storage locations or accumulation points. Hazardous waste or hazardous material releases involving solvents, used oils, pesticides, paint strippers, and possibly PCBs, have occurred, or are suspected at these sites. Site Nos. 19 and 20 involve contaminated leachate from the heating plant's coal piles. Site Nos. 9 and 17 were included because of potential pesticide releases here. Site No. 18 was investigated because of its use as a pesticide storage location. The remaining four sites involve the release of various other contaminants.

Twenty-two of the 27 sites identified at the ANGB were scored utilizing the U.S. Air Force Hazard Assessment Rating Methodology (HARM) and are recommended for further IRP investigation. The remaining five of the 27 identified potentially contaminated hazardous waste sites were not scored or recommended for subsequent IRP investigation. The unscored sites include Site Nos. 7, 8, 11, 13, and 18. Site Nos. 7 and 8 were not scored or recommended for further IRP investigation because potential contaminants from these sites, if present, should be detected in investigative work performed at other IRP sites on the ANGB. At Site Nos. 11 and 13, contaminants were either recovered or burned to the extent that there was insignificant potential for migration of the remaining contaminants to receptors. Site No. 18, a pesticide storage building, was not rated because HMTC's investigation of the site, and a walk through inspection indicated that hazardous wastes have not been released here.

Thus, in summary, there are a total of 27 sites identified on the ANGB; 22 of these sites have been scored under HARM and are recommended for subsequent IRP investigation. Five sites were not scored or recommended for further IRP investigation.

C. CONCLUSIONS

Follow-up IRP recommendations were made at 22 of the 27 identified sites. Each of these sites have been further evaluated and given a Hazard Assessment Score (HAS), utilizing HARM. These sites consist of the following:

Site No. 1 - Hazardous Waste Storage Area, Bldg. 560 (HAS-56)
This site consists of two 25,000-gallon underground storage tanks (UST) used to store used oil, and in the past, hazardous wastes. Also at this site, is a waste drum storage area. One known leak has occurred at this site from the UST. The exact quantity of the release is not known, but it is considered to be less than 1,000 gallons.

Site No. 2 - JP-4 Bulk Storage Tank Farm (HAS-54)
Four spills have occurred at the tank farm facility, resulting in a net loss of over 13,000 gallons of unrecovered JP-4.

Site No. 3 - JP-4 Pumping Station No. 4 (HAS-61)
In 1976, 25,000 gallons of JP-4 spilled from a ruptured fuel line at this site. Approximately 24,000 gallons entered nearby drainage ditches, absorbed into the ground, or evaporated.

Site No. 4 - JP-4 Pumping Station No. 5 (HAS-54)

This is the site of a 1985 tank overfill which resulted in the loss of 200 gallons of JP-4 - none of which was recovered. Spilled fuel either seeped into the ground, or entered the base storm drainage system.

Site No. 5 - Lateral Safety Zone Spill Area (HAS-60)
In 1972, an 80,000 gallon JP-4 spill occurred at this location from fuel pumping equipment. The JP-4 either evaporated, was absorbed into the ground, or entered the base drainage system.

Site No. 6 - Underground Storage Tank at Base Filling Station (HAS-51)
Approximately 100 gallons of unleaded gasoline leaked from an underground fuel tank at the base filling station when the unsecured tank floated and ruptured a line connection. Although the contaminant release is not extremely large, the site is close to base drinking water wells and therefore, a HAS was applied.

Site No. 9 - Salvage Yard, Facility No. 906 (HAS-51)
This site has been used as a general storage area for both hazardous and nonhazardous items. In addition to leakage which may have occurred from waste drums stored at this location, several pesticide drums caught fire here in 1983, resulting in the release of hazardous wastes. Assuming some of the pesticides were destroyed in the fire, and some remained in the drum, the quantity released at this site is thought to be under two drums.

Site No. 10 - Location of JP-4 Fuel Line Rupture (HAS-53)
In 1982, a fuel line rupture at this site resulted in spillage of an unspecified, but large quantity (in excess of 4,000 gallons) of JP-4. The ground at this site was said to be saturated with JP-4 for a long time.

Site No. 12 - Old Drum Storage Area (HAS-43)
Waste drums containing methyl ethyl ketone and other solvents and paint strippers were stored at this site for several years prior to 1984. It was reported that the contents of some (less than 20) of the drums were dumped into an adjacent drainage ditch which is included as part of this site.

Site No. 14 - KC-135 Crash Site (HAS-53)
Approximately 10,000 gallons of fuel was lost at this site as a result of a collision between two KC-135 aircraft. Fuel flowed from the concrete runway where the planes collided to the adjacent grass, which comprises this site.

Site No. 15 - Fuel Dump Pit at Southwest End of Runway (HAS-53)

It was reported that during the 1940's (and perhaps later), this site was used as a fuel dump pit for planes. It is not unlikely that large quantities of aircraft fuel were dumped here.

Site No. 16 - Fuel Dump Pit at the Northeast End of Runway (HAS-53)

This site was reportedly used for the same purpose as the Site No. 15 fuel dump pit.

Site No. 17 - Old Entomology Laboratory (HAS-53)
Pesticide spray equipment was routinely washed outside the entomology building, resulting in the release of pesticide laden rinsate. The entomology building eventually burned, and interviewees stated that drums of malathion stored outside the building leaked during the fire. The amount of pesticides released is not considered to exceed four drums.

Site No. 19 - North Coal Pile (HAS-64)
This site consists of an area surrounding a heating plant coal pile, including a nearby drainage ditch. The site has been used since 1953 to store fuel oil saturated coal, and there is visible evidence of coal leachate contamination resulting from coal pile runoff.

Site No. 20 - South Coal Pile (HAS-64)
This site is used for the same purpose as Site No. 19 and environmental conditions are equivalent.

Site No. 21 - Leaking Drum and Oil Change Area at Water Treatment Plant (HAS-54)

A horizontally positioned drum of WD-30 (a petroleum distillate), is apparently chronically leaking. Ground around the drum is visible stained. Several yards from this site is an area used by base personnel to change the oil in their recreational vehicles; oil puddles and stained ground indicate that oil is discarded onto the ground at this site.

Site No. 22 - Heating Plant Lube Oil Drum Storage Area (HAS-51)

This site is used to store lubricating oil and cleaning fluids. Evidence of past leaks is indicated by the surrounding oil soaked ground. Because a drainage ditch is located several feet from this site, it is considered a potential threat to both surface and groundwater.

Site No. 23 - Fire Training Area (HAS-59)
It is estimated that several thousand gallons of JP-4 are released at the fire training area (FTA) each year. In the past, it is probable that solvents and other flammable liquids were released at the FTA. The pits are located on an unlined hard pack surface. Low berms around the pits have eroded and allow runoff to escape from the pits during rains.

Site No. 24 - Sanitary Sewage Treatment Plant Sludge Beds (HAS-50)

From the late 1950's until around 1983, sludge from the ANGB's now inactive sewage treatment plant was dried at this site. Various shop waste streams were routed to the treatment plant - increasing the likelihood that hazardous contaminants were present in the sludges.

Site No. 25 - Storm Drainage Ditch System (HAS-70)
This site includes areas within the base's open storm drainage ditch system near points where individual shop drains discharge into the ditch. Shop wastes have, in the past, been released into the storm drainage system, and some wastes

have been dumped directly into drainage ditches. Given the age of the base (45 years), and the nature of shop activities, it is considered that a large quantity (in excess of 4,000 gallons) of hazardous waste has entered the base storm drainage system.

Site No. 26 - Electrical Transformer Storage Yard (HAS-48)

Electrical transformers were stored at this site from 1950 until 1975. At any one time, approximately 25 to 30 transformers might be stored here. It is not known if the transformers contained PCB laden dielectric fluid, and if so, whether the transformers leaked.

Site No. 27 - Drainage Ditch Near Landfill (HAS-56)
In 1982, solvents were dumped into a drainage ditch at this site. The contaminants remained in the ditch for a day before they were washed off-base. The total amount of solvents released is not considered to exceed 20 drums.

Because of the potential for ground and surface water contamination and contaminant migration to potential receptors, each of the above mentioned sites should be further investigated in accordance with the IRP Phase II/IVA process. The most likely potential contaminant receptors at the ANGB are consumers of base drinking water. Base drinking water is derived from wells located on and near the base. These are wells installed in an unconfined sand and gravel aquifer. Some sites on the base may also present potential threats to the quality of local surface water. Potentially contaminated shallow groundwater may threaten surface water at points where groundwater discharges into surface streams; or, surface water may be impacted by potential contaminants in the base storm drainage system that are not successfully intercepted by oil/water separators.

D. RECOMMENDATIONS

Because of the potential for contaminant migration, initial investigative stages of the IRP Phase II/IVA are recommended for 22 sites at the ANGB. The primary purposes of the subsequent investigations are

1. To determine whether pollutants are present at each site or determine that no pollutants are present, and

2. To determine whether groundwater at each site has been contaminated, and if it has, give quantification with respect to contaminant concentrations, the boundary of the contaminant plume, and the rate of contaminant migration.

Recommendations at the ANGB sites prescribe one or more of the following measures: installation of groundwater monitoring wells, soil and sediment sampling, or geochemical/geophysical detection techniques. Samples will be analyzed according to parameters consistent with types of contaminants suspected at the individual sites. Geophysical/geochemical investigations are recommended as initial steps of identification and quantification at Site Nos. 1 through 6, and Site Nos. 10, 14, 15, 16, 23, 25, and 27. Each of these sites involves POL releases, detection of which is amenable to geophysical/geochemical methods.

1. INTRODUCTION

I. INTRODUCTION

A. Background

The Rickenbacker Air National Guard Base (ANGB), Columbus, Ohio, is located south of the city of Columbus near the village of Lockbourne. Rickenbacker ANGB, previously known as Lockbourne Air Force Base (AFB), has been active since 1942. Over the years the types of military aircraft based and serviced at Rickenbacker ANGB have varied. Both past and present operations have involved the use of hazardous materials and disposal of hazardous wastes. Because of the use of hazardous materials and disposal of hazardous wastes at its installations, the Air National Guard (ANG) has implemented its Installation Restoration Program (IRP). The IRP is a four-phase program consisting of the following:

Phase I - Records Search (Installation Assessment) - identify past spill or disposal sites posing a potential and/or actual hazard to public health or the environment.

Phase II/IVA - Site Characterization/Remedial Action Plan - acquiring data via field studies, for the confirmation and quantification of environmental contamination that may have an adverse impact on public health or the environment; preparing a Remedial Action Plan (RAP); and, if directed by the National Guard Bureau, preparing designs and specifications.

Phase III - Technology Base Development (if needed) - developing new technology for accomplishment of remediation.

Phase IVB - Implementation of Site Remedial Action.

B. Purpose

The purpose of this IRP Phase I - Records Search (hereinafter referred to as Records Search) is to identify and evaluate suspected problems associated with past hazardous waste handling procedures, disposal sites, and spill sites

on ANGB property. The potential for migration of hazardous contaminants is evaluated by visiting the ANGB, reviewing existing environmental information, analyzing ANGB records concerning the use and generation of hazardous materials/hazardous wastes, and conducting interviews with past and present ANGB personnel who are familiar with past hazardous materials management activities. Relevant information collected and analyzed as a part of the Records Search includes the history of the ANGB, with special emphasis on the history of the shop operations and their past hazardous material/hazardous waste management procedures; the local geological, hydrological, and meteorological conditions that may affect migration of contaminants; local land use, public utilities, and zoning requirements that affect the potential for exposure to contaminants; and the ecological settings that indicate environmentally sensitive habitats or evidence of environmental stress.

C. Scope

The scope of this Records Search is limited to spills, leaks, or disposal problems occurring on ANGB property or on property used solely by the ANGB in the past, and includes:

- o An onsite base visit,
- o The acquisition of pertinent information and records on hazardous materials use and hazardous waste generation and disposal practices at the ANGB;
- o The acquisition of available geologic, hydrologic, meteorologic, land use, and zoning, critical habitat and utility data from various Federal, and Ohio State agencies;
- o A review and analysis of all information obtained; and
- o The preparation of a report, to include recommendations for further actions.

The onsite visit, interviews with past and present personnel, and meetings with Federal, State and local agency personnel were conducted during the period 19-22 May, 1986. The HMTC Search effort was conducted by:

- o Mr. Timothy N. Gardner, Environmental Scientist (M.A. Environmental Biology, 1984;
- o Mr. William Eaton, Hydrogeologist (M.S. Hydrogeology, 1983);
- o Mr. Donato Telesca, Chemical Engineer (B.S. Chemical Engineering, 1948);
- o Mr. Eric Kuhl, Staff Scientist (B.A. Political Science/Environmental Policy, 1982).

(Resumes are included as Appendix A). Individuals from the ANG who assisted in the Records Search included Mr. Arthur Lee, Environmental Engineer ANGSC/DEV; and Lt. Colonel Michael Washeleski, Bioenvironmental Engineer ANGSC/SGB, and selected members of Detachment 1 (DET 1) Ohio Air National Guard (ANG). The Point of Contact at Rickenbacker ANGB was Mr. Alan C. Friedstrom, Chief of Engineering Design.

D. Methodology

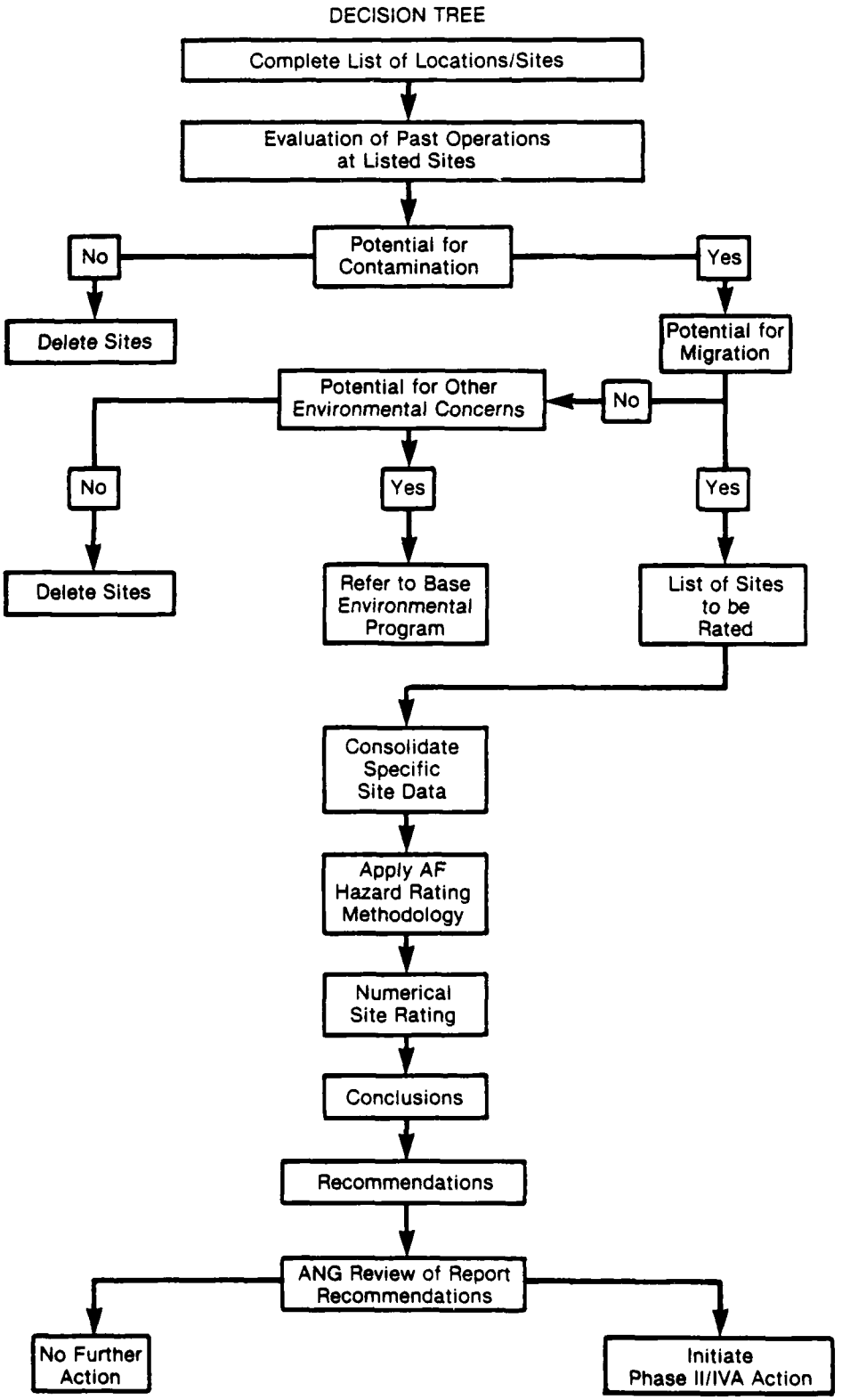
A flow chart of the Records Search Methodology is presented in Figure 1. This Records Search methodology ensures a comprehensive collection and review of pertinent site specific information, and is utilized in the identification and assessment of potentially contaminated hazardous waste spill/disposal sites.

The Records Search began with a site visit to the ANGB to identify all shop operations or activities on the base that may have utilized hazardous material or generated hazardous waste. Next, an evaluation of past and present hazardous materials/hazardous waste handling procedures at the identified locations was made to determine whether environmental contamination may have occurred. The evaluation of past hazardous materials/hazardous waste handling practices was facilitated by extensive interviews with 23 past and present employees familiar with the various operating procedures at the base. These interviews were also utilized to define the areas on the ANGB where any waste materials (hazardous or nonhazardous), either intentionally or inadvertently, may have been used, spilled, stored, disposed of, or released into the environment.

HMTC

PHASE I
INSTALLATION
RESTORATION PROGRAM

Figure 1.
Records Search Methodology Flow Chart.



Appendix B lists the interviewee's principle areas of knowledge and their years of experience with the ANGB. Historic records contained in the ANGB's files were collected and reviewed to supplement the information obtained from interviews. Using the information outlined above, a list of waste spill/disposal sites on the ANGB were identified for further evaluation. A general survey tour of the identified spill/disposal sites, the ANGB, and the surrounding area was conducted to determine the presence of visible contamination and to help assess the potential for contaminant migration. Particular attention was given to locating nearby drainage ditches, surface water bodies, residences, and wells.

Detailed geological, hydrological, meteorological, development (land use and zoning), and environmental data for the area of study were also obtained from appropriate Federal and State agencies as identified in Appendix C. Following a detailed analysis of all the information obtained, it was determined that 27 identified sites at the ANGI were potentially contaminated with hazardous materials. Twenty-two sites exhibited a potential for contaminant migration and these sites were numerically scored utilizing the U.S. Air Force Hazardous Assessment Rating Methodology (HARM). A description of HARM is presented in Appendix D. Recommendations for follow-up investigations on the 22 HARM scored sites were developed. Five sites were not scored under HARM or recommended for IRP follow-up actions. Site Nos. 7 and 8 were not scored because potential contaminants at these sites should, if present, be detected during investigative work performed at other identified IRP sites. Contaminants at Site Nos. 11 and 13 were either recovered or destroyed by fire. Site No. 18, a pesticide storage building, was not rated because there is are reports or evidence to suggest that contaminants have been released at this site.

2. INSTALLATION DESCRIPTION

II. INSTALLATION DESCRIPTION

A. Location

The Rickenbacker ANGB is located 12 miles southeast of Columbus, Ohio, on Route 317, and is approximately 0.5 mile from the village of Lockbourne. The base, which is situated 740 feet above sea level, is comprised of approximately 2,100 acres. In 1982, ownership of a portion of the base held by the Air Force, was transferred to the Rickenbacker Port Authority (RPA). The RPA property is used as an airstrip for private aircraft and as a base of operations for the Flying Tigers' commercial delivery service. Figure 2 shows the area studied for this Phase I report.

B. Organization and History

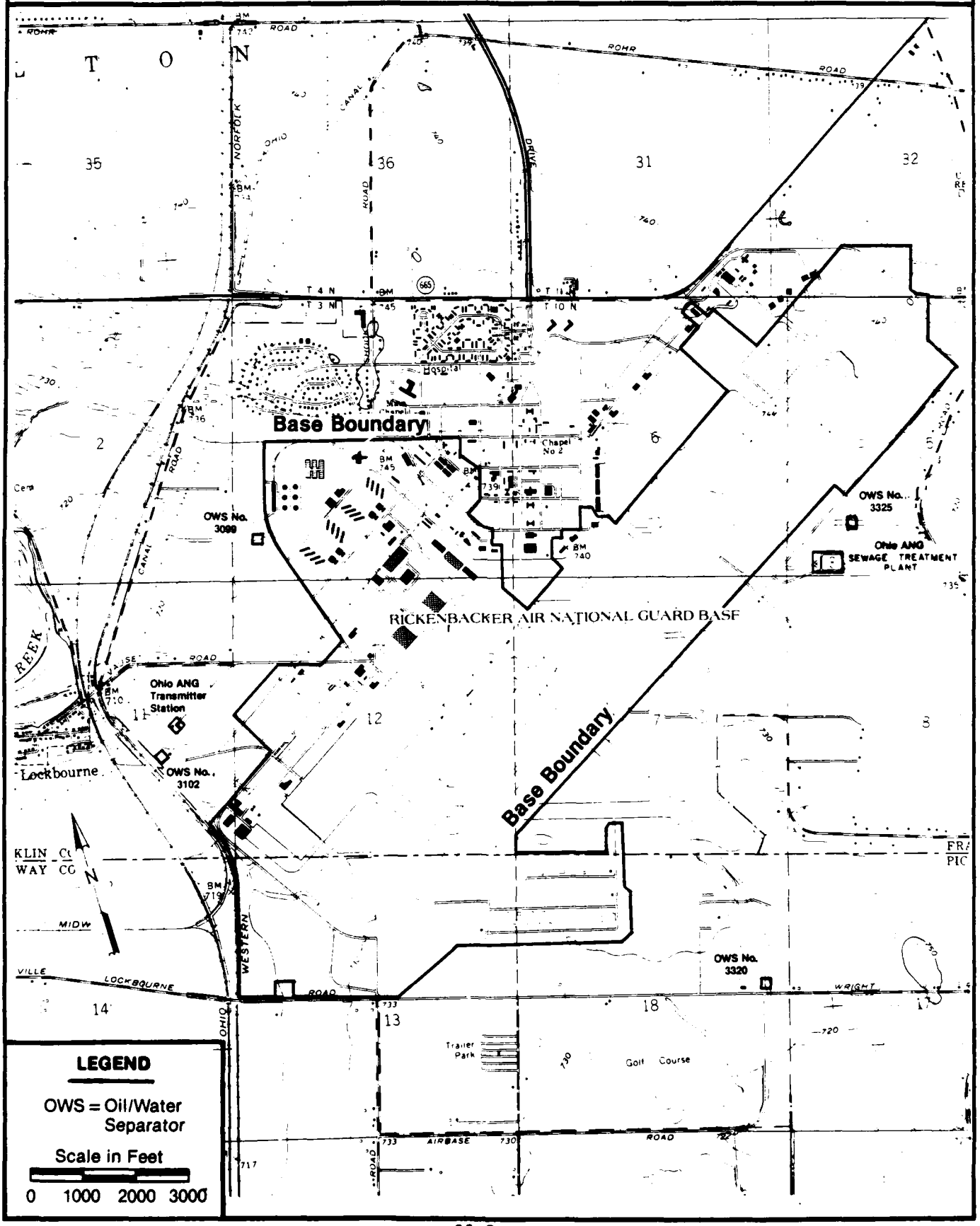
Rickenbacker ANGB, known as Lockbourne Air Force Base until 1974, was officially activated as the Southeastern Training Center, Army Air Corps in 1942, and used as a training center for glider pilots. In 1943, glider training was discontinued and a school for B-17 pilots was established at the base.

In 1949, the base was deactivated by the Air Force and used for 18 months as an Ohio ANG training base until 1951, when the base was transferred to the Strategic Air Command (SAC) and reactivated as an Air Force Base in response to the Korean War. In 1958, the 301st Bombardment Wing moved to the base. In June 1964, the 301st Bombardment Wing was redesignated as the 301st Air Refueling Wing and began flying KC-135 Strato Tankers out of the base. The SAC refueling mission of the 301st Air Refueling Wing is continued today at Rickenbacker by the 160th Air Refueling Group of the Ohio ANG, which moved to the base in 1972. In July 1965, the 840th Air Division of the Tactical Air Command moved to Rickenbacker with its C-130 Hercules Cargo Aircraft and took command of the base. In 1971, command of the base was again transferred to SAC under the 301st Air Refueling Wing. Also in 1971, the Air Force Reserve's (AFRES) 302nd Tactical Airlift Wing (TAW) moved to Rickenbacker from the Clinton County Air Base. The 302nd TAW flew C-130A cargo planes in support of

HMTC

Adapted From:
USGS 7-1/2 Minute Quadrangle
Lockbourne, Ohio
(Rev. 1974)

Figure 2.
Site Map of Rickenbacker ANGB, Columbus, Ohio.



their airlift mission. In 1981, the 302nd TAW vacated Rickenbacker ANGB, and its units were converted to the 907th Tactical Airlift Group (TAG) (AFRES). Aircraft used by the 907th TAG include C-123K's and C-130A's. The 907th Aerial Spray Branch, under the 907th TAG, is responsible for aerial pesticide spraying missions at other bases around the country (pesticides used by the 907th Aerial Spray Branch are not stored or transported at Rickenbacker ANGB, but are supplied by the base being sprayed). In 1977, SAC vacated the base and turned control of the base over to Detachment 1 Ohio ANG, who presently serve as the base host. In addition to the 160th Air Refueling Group (Ohio ANG) and the 907th TAG (AFRES), the 121st Tactical Fighter Wing (Ohio ANG) is also a current tenant at Rickenbacker. The 121st has been at Rickenbacker since 1949, previously flying F-100s and currently flying A-7Ds.

3. ENVIRONMENTAL SETTING

III. ENVIRONMENTAL SETTING

A. Meteorology

Precipitation in Columbus, Ohio, averages 36.71 inches per year. By calculating net precipitation according to the method outlined in the Federal Register (Vol. 47, No. 137, July 16, 1982, p. 31224, para. 3.2), a net precipitation value of 2.71 inches per year is obtained. Rainfall intensity based on 1 year, 24-hour rainfall is 2.5 inches (calculated according to Federal Register, Vol. 47, No. 137, July 16, 1982, p. 31235, Figure 8).

B. Geology

Franklin County, Ohio, and the Columbus area, are situated on the topographic division known as the Allegheny Plateau, in an area that forms the rather indefinite border zone where the Glaciated Plains and Appalachian Province merge.

The geology of the Columbus area is typical of this region. It consists of sedimentary strata of the Paleozoic Era deposited during numerous transgressions and regressions of inland seas through the region, from the Cambrian Period until well into the Permian Period. This sedimentary strata was later thrown into open folds or gently warped or tilted as a repercussion of the great uplift of eastern North America. Like most states on the western side of the Appalachians, the deformation is slight. The present topography of the Columbus area is the result of numerous advances of great continental glaciers of the Pleistocene Epoch. Glaciers eroded the bedrock as they traversed its surface, and deposited great quantities of gravel, clay, and sand upon their final melting. Post glacial wind and water weathering and erosion gave the land its present relief and drainage system (Hubbard, 1915).

The bedrock that immediately underlies Rickenbacker ANGB consists of a bituminous black shale with large concretions of glacial origins, deposited during the Devonian Period. This bedrock is contacted at approximately 150 to

200 feet below land surface. Overlying this shale are permeable sand and gravel deposits, interbedded in places with layers of till, silt, or clay. The sand and gravels are overlain by ground moraine deposits consisting of clayey till and fine sand. At the ANGB, ground moraine deposits are between 8 and 90 feet deep (Schmidt 1958).

The Rickenbacker ANGB is located upon a major soil association known as the Crosby-Kokomo-Celina association. Three soil types within this association occur within the Rickenbacker ANGB boundaries. Specifically, the three ANGB soil types are CsA--Crosby Urban land complex (2 percent slopes); Ku--Kokomo urban land complex; and Ko--Kokomo silty clay loam. Soils forming the Crosby-Kokomo-Celina soil association are described as being deep, nearly level to sloping; moderately well drained, somewhat poorly drained; and very poorly drained soils formed in medium textured and moderately fine textured glacial till. Permeability rates for these soils range from a very slow 0.06 inch/hour to a moderate 2.0 inches/hour (McLoda, 1977).

C. Hydrology

1. Surface Water

Rickenbacker ANGB is located in the central portion of the Scioto River Basin. Federal Emergency Management Agency flood maps indicate that the ANGB is not within the boundaries of a floodplain associated with 100-year frequency floods.

Natural surface drainage on the base is poor, due to the very slow to moderate permeability of the soils, the flat topography, and the fact that the base is located in the central portion of a river basin. In order to provide sufficient surface drainage for the base, an extensive storm drainage system was constructed. The system involves numerous inlets, extensive underground piping, drainage ditches, and four main oil/water separators (OWS). The OWS are located near the four corners of the base where the storm drainage leaves base property. Although the OWS are not contiguous with main base boundary,

the Ohio ANG has retained property rights to them and controls their use. In effect, almost all surface runoff is routed through the storm drainage system, and runs offbase at one of the four OWS. Effluent from the OWS then flows towards one of two creeks that straddle Rickenbacker ANGB. To the east of the base is Walnut Creek and to the west of the base is Big Walnut Creek.

2. Groundwater

Extensive sand and gravel deposits of glacial origin supply most domestic and industrial wells in the vicinity of Rickenbacker ANGB. The sand and gravel deposits underlie 8 to 90 feet of clayey till and have an average thickness of 44 feet (Schmidt, 1958).

Five wells supplying drinking water for ANGB personnel are located in the northwest portion of the base, adjacent to Shook Road. The nearest wells to the ANGB supplying non-base personnel are located in the village of Lockbourne, approximately 1.5 miles from the base. ANGB well logs illustrate relatively thick layers of sand, gravel, or sand and gravel interspersed in thin layers of clayey till as the water bearing units. Shale bedrock underlying these glacial deposits is encountered at approximately 150 to 211 feet (Schmidt, 1958). The depth of ANGB wells ranges from 196 to 211 feet. The wells are screened in the basal portion of the unconsolidated glacial deposits, immediately above the shale bedrock. Water levels in the wells are between 33 and 52 feet from the surface. Since these well are screened in an unconfined aquifer, the water level in the wells is equivalent to the level of the water table at the ANGB. However, as a result of seasonal fluctuations, groundwater levels may vary by as much as 20 feet or more.

Although substantial data on the subject is currently unavailable, the flow direction of shallow groundwater at Rickenbacker ANGB is expected to be towards surface water streams on either side of the base. Thus, groundwater beneath the western portion of the base is assumed to flow in a southwesterly direction towards Big Walnut Creek. However, portions of the aquifer nearer to the creek will tend to be influenced by the stream flow, causing groundwater proximate to the creek to move in a more westerly direction towards the creek. Shallow groundwater in the eastern portion of the base will

tend to flow in a southeasterly direction towards Walnut Creek, being drawn in an easterly direction in those portions of the aquifer adjacent to Walnut Creek. In areas proximate to streams, groundwater flow direction is subject to seasonal influences that may reverse flow direction.

Locally, pumping of base wells will affect the flow direction of groundwater underlying the base. Well pumping creates a cone of depression around the wells, drawing groundwater towards the well from all directions. The extent of this influence depends on the quantity of water pumped from the well, and the length of time the well is pumped.

IV. SITE EVALUATION

A. Activity Review

A review of base records and interviews with past and present base employees resulted in the identification of specific operations within each activity in which the majority of industrial chemicals are handled and hazardous wastes are generated. Table 1 summarizes the major operations associated with each activity, provides estimates of the quantities of waste currently being generated by the operations, and describes the past and present disposal practices for the wastes. If an operation is not listed in Table 1, then that operation has been determined on a best-estimate basis, to produce negligible quantities of wastes requiring ultimate disposal.

B. Disposal/Spill Site Identification, Evaluation, and Hazard Assessment

Interviews with 23 base personnel (Appendix B) and subsequent site inspections resulted in the identification of 27 waste disposal/spill sites. It was determined that 22 sites were potentially contaminated with hazardous materials with potential for migration. Therefore, it was recommended that these 22 sites should be further evaluated. Each of the 22 sites were scored using HARM (Appendix D). Copies of completed Hazard Assessment Rating Forms are found in Appendix E. Table 2 summarizes the Hazard Assessment Scores (HAS) for each of the scored sites. Five sites were not scored under HARM or recommended for follow-up IRP investigation. Site Nos. 7 and 8 were not scored because potential contaminants at these sites should, if present, be detected during investigative work performed at other identified IRP sites. Contaminants at Site Nos. 11 and 13 were either recovered or destroyed by fire. Site No. 18, a pesticide storage building, was not rated because there are no reports or evidence to suggest that contaminants have been released at this site.

Table 1. Hazardous Waste Disposal Summary: Rickenbacker ANGB, Columbus, Ohio

SHOP NAME	LOCATION (BLDG. NO.)	WASTE MATERIAL	WASTE QUANTITY Gallons/Year	METHODS OF TREATMENT, STORAGE & DISPOSAL 1970 1980 1986
Flight Simulator	944	PD-680	105	CONTR
		Hydraulic Fluid	245	
Machine Shop	885	Metal Cutting Oils	1	STRM DR
		Lubricating Oils	3	DRMO
Transportation Maintenance	846	Hydraulic Fluid	40	DRMO
		Engine Oil	500	DRMO
		Acid, Electrolyte	50	NEUTR
Transportation Paint Shop	846	Solvents	50	STRM DR
		Paint Thinners	25	STRM DR
Power Production		Sulfuric Acid	40	NEUTR
Liquid Fuels	553, 440	Waste Fuels	500	CONTR
		JP-4		
		AVGAS		
		MOGAS		
		Fuel Sludge		WTHR/DIS
Aircraft Maintenance	595, 875, 885, 888, 931, 940	PD-680	550	STRM SEW, DRMO, SAN SEW
		Methyl Ethyl Ketone	125	STRM SEW, DRMO, SAN SEW
		Engine Oils	300	DRMO
		Mineral Oils	250	DRMO
		Hydraulic Fluid	1100	DRMO
		Carbon Remover	600	STRM SEW → DRMO
		Battery Cells	4200 units/yr.	CONTR
		Acid, Electrolyte	200	NEUTR
		Paint Strippers	50	DRMO
		Paint Thinners	200	DRMO

Table 1. Hazardous Waste Disposal Summary: Rickenbacker ANGB, Columbus, Ohio (Continued)

SHOP NAME	LOCATION (BLDG. NO.)	WASTE MATERIAL	WASTE QUANTITY Gallons/Year	METHODS OF TREATMENT, STORAGE & DISPOSAL 1970 1980 1986
Aerospace Ground Equipment Maintenance	595, 932, 933	Aircraft Cleaning Cmpd.	110	STRM SEW / SAN SEW
		Carbon Remover	100	STRM SEW → DRMO
		PD-680	90	DRMO
		Methyl Ethyl Ketone	2	DRMO
		Hydraulic Fluid	60	DRMO
		Engine Oil	50	DRMO
		Acid, Electrolyte	35	NEUTR

Key: STRM SEW - Drained to storm sewer
SAN SEW - Drained to sanitary sewer
DRMO - Disposed of by Defense Reutilization Marketing Office
CONTR - Disposed of by Contractor
NEUTR - Neutralized and drained to sanitary sewer
WTHR/DIS - Weathered and disposed of as solid waste

Table 2. Site Hazard Assessment Scores: Rickenbacker ANGB, Columbus, Ohio

Priority	Site No.	Site Description	Receptor	Waste Characteristics	Pathway	Waste Mgmt. Practices	Overall Score
1	25	The Storm Drainage Ditch System	68	100	41	1.0	70
2	2	JP-4 Bulk Storage Tank Farm	68	90	41	.95	66
3	3	JP-4 Pumping Station No. 4	63	90	41	1.0	65
4	19	North Coal Pile	68	45	80	1.0	64
5	20	South Coal Pile	68	45	80	1.0	64
6	23	Fire Training Area	57	90	41	1.0	63
7	5	Lateral Safety Zone Spill Area	59	90	41	1.0	63
8	14	KC-135 Crash Site	57	90	41	1.0	63
9	27	Drainage Ditch Near Landfill	57	40	80	1.0	59
10	1	Hazardous Waste Storage Area, Building 560	68	60	41	1.0	56
11	10	Location of JP-4 Fuel Line Rupture	65	63	41	1.0	56
12	17	Old Entomology Lab	68	60	41	1.0	56
13	9	Salvage Yard, Facility No. 906	63	60	41	1.0	55
14	6	Underground Storage Tank at Base Filling Station	68	54	41	1.0	54
15	4	JP-4 Pumping Station No. 5	68	54	41	1.0	54
16	21	Leaking Drum and Oil Change Area at Water Treatment Plant	68	54	41	1.0	54
17	15	Fuel Dump Pit at Southwest End of Runway	54	63	41	1.0	53
18	16	Fuel Dump Pit at Northeast End of Runway	54	63	41	1.0	53
19	22	Heating Plant Lube Oil Drum Storage Area	68	45	41	1.0	51

Table 2. Site Hazard Assessment Scores: Rickenbacker ANGB, Columbus, Ohio (Continued)

Priority	Site No.	Site Description	Receptor	Waste Characteristics	Pathway	Waste Mgmt. Practices	Overall Score
20	24	Sanitary Sewage Treatment Plant Sludge Beds	57	53	41	1.0	50
21	26	Electrical Transformer Storage	63	40	41	1.0	48
22	12	Old Drum Storage Area	68	30	41	1.0	46

Figure 3 illustrates the locations of the scored and the unscored sites. Illustrated enlargements of individual sites, or groups of sites, are presented in Figures 3A through 3H. Figure 3A through 3H should be viewed in conjunction with Figure 3 in order to determine the relative locations of the enlarged sites on the base.

As stated, there is a potential for contaminant migration at each of the HARM scored sites. At each of these sites, the contaminant migration pathway of primary concern is the groundwater route, and the most likely potential receptors to groundwater contamination (if present) are consumers of drinking water from base wells. There is no evidence to suggest that base wells are contaminated. However, these wells are screened within an unconfined, permeable, sand and gravel aquifer (see Groundwater). There are no hydraulic barriers present which can be considered significantly effective in separating shallow groundwater at the water table level, from deeper groundwater where wells are screened. Consequently, these wells are susceptible to contamination from surface, or shallow subsurface sources (e.g., underground tanks). All of the rated sites are located within 1.3 miles of the ANGB wells, and the nearest site is within 0.3 mile of the wells. Other potential receptors of potentially contaminated groundwater are consumers of drinking water from wells located in the village of Lockbourne, 1.5 miles from the base.

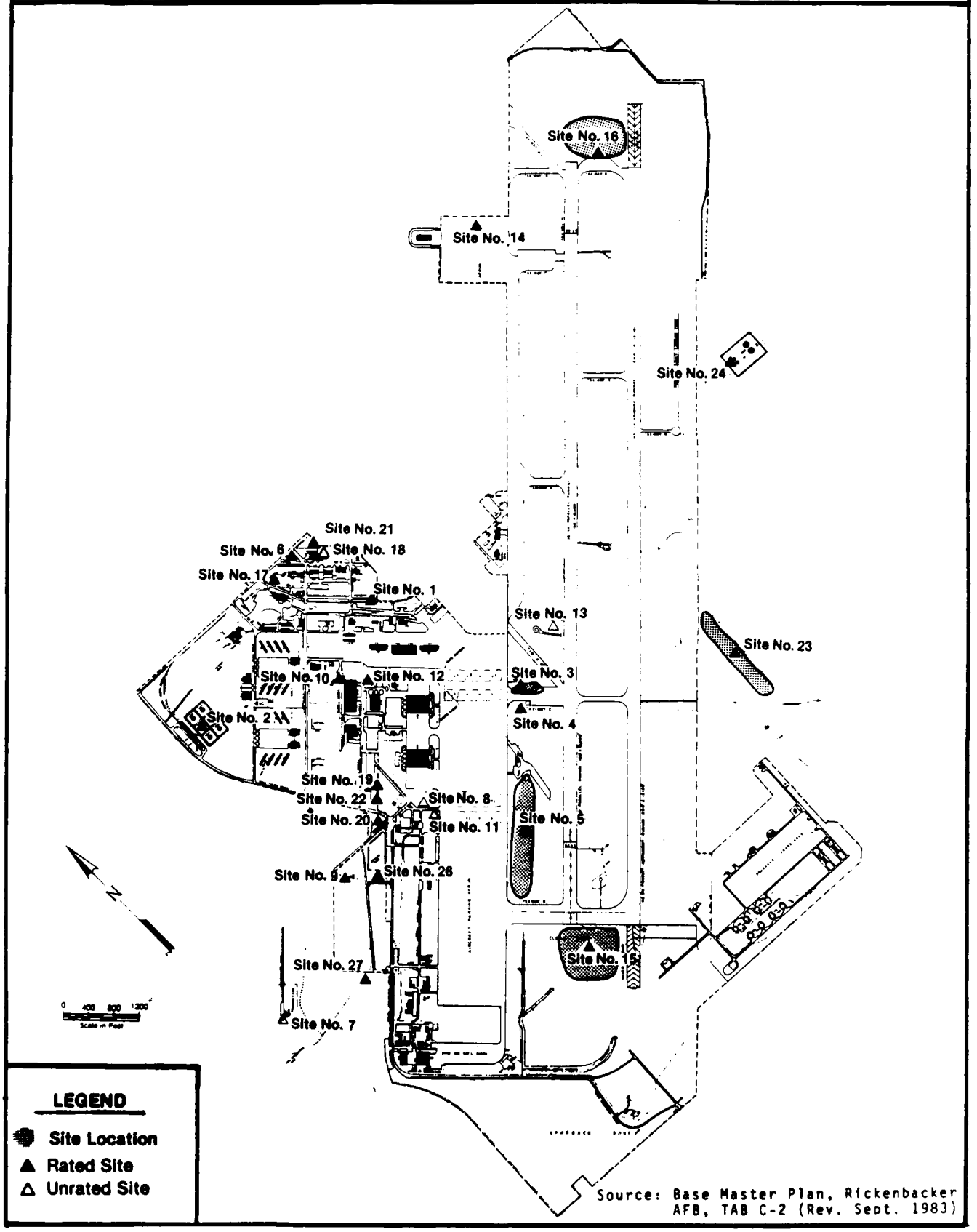
Some sites on the base may also present potential threats to the quality of local surface water. Potentially contaminated shallow groundwater may threaten surface water at points where groundwater discharges into surface streams; or, surface water may be impacted by potential contaminants in the base storm drainage system that are not successfully intercepted by oil/water separators.

Site No. 1 - Hazardous Waste Storage Area, Bldg. 560 (HAS-56)

A portion of this site consists of two 25,000-gallon underground storage tanks (UST) near Bldg. 560. Since 1950, these tanks have been used as a repository for waste oils, solvents, and various other unspecified waste chemical substances generated by Rickenbacker ANGB. The majority of the waste deposited

HMTC

Figure 3.
Location of Sites at Rickenbacker ANGB, Columbus, Ohio.

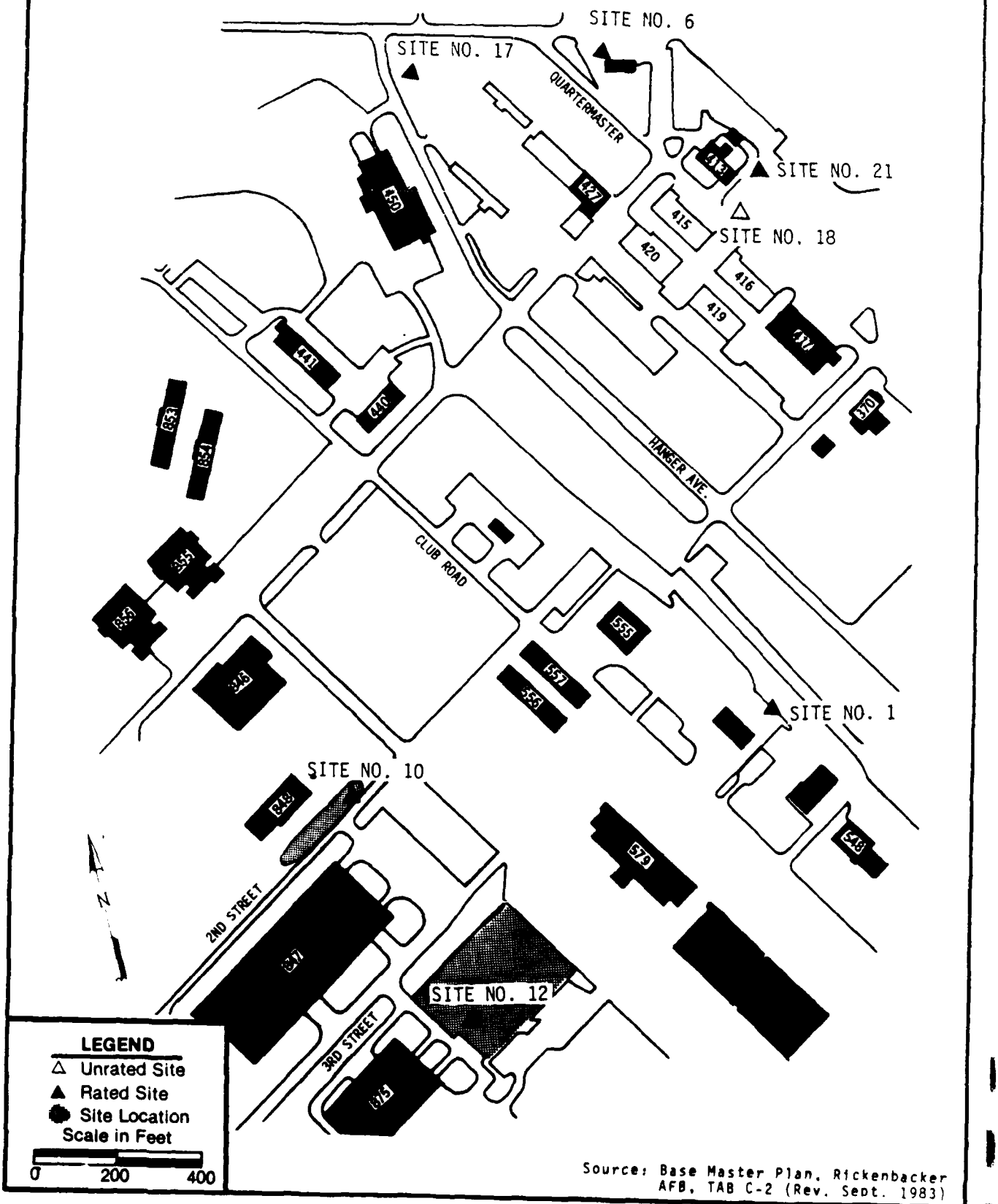


Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Location of Site Nos.
1, 6, 10, 12, 17, 18 and 21 at Rickenbacker ANGB, Columbus, Ohio.

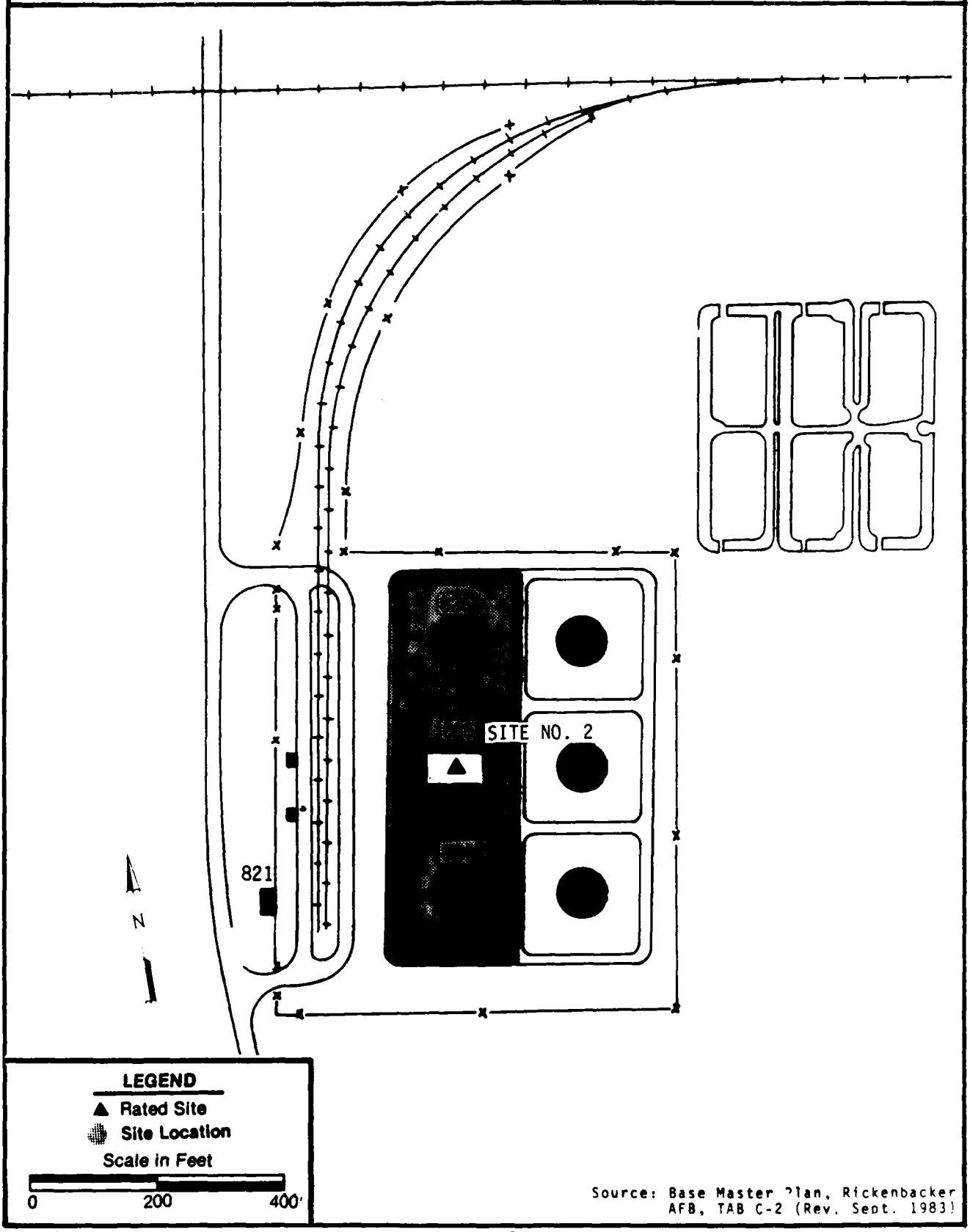
Figure 3A.



Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Figure 3B.
Location of Site No. 2 at Rickenbacker ANGB, Columbus, Ohio.

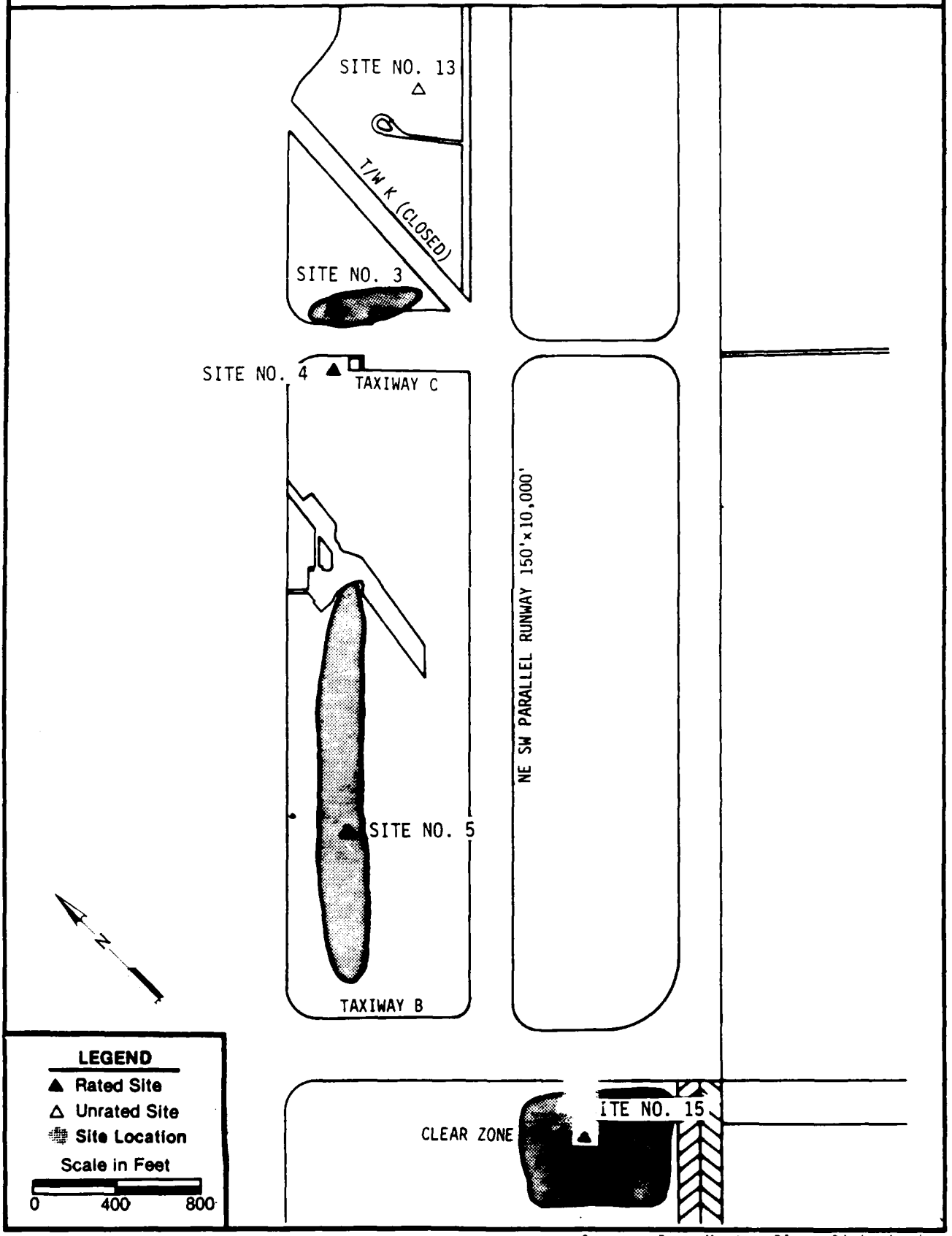


Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Location of Site Nos. 3, 4, 5, 13 and 15 at Rickenbacker ANGB, Columbus, Ohio.

Figure 3C.

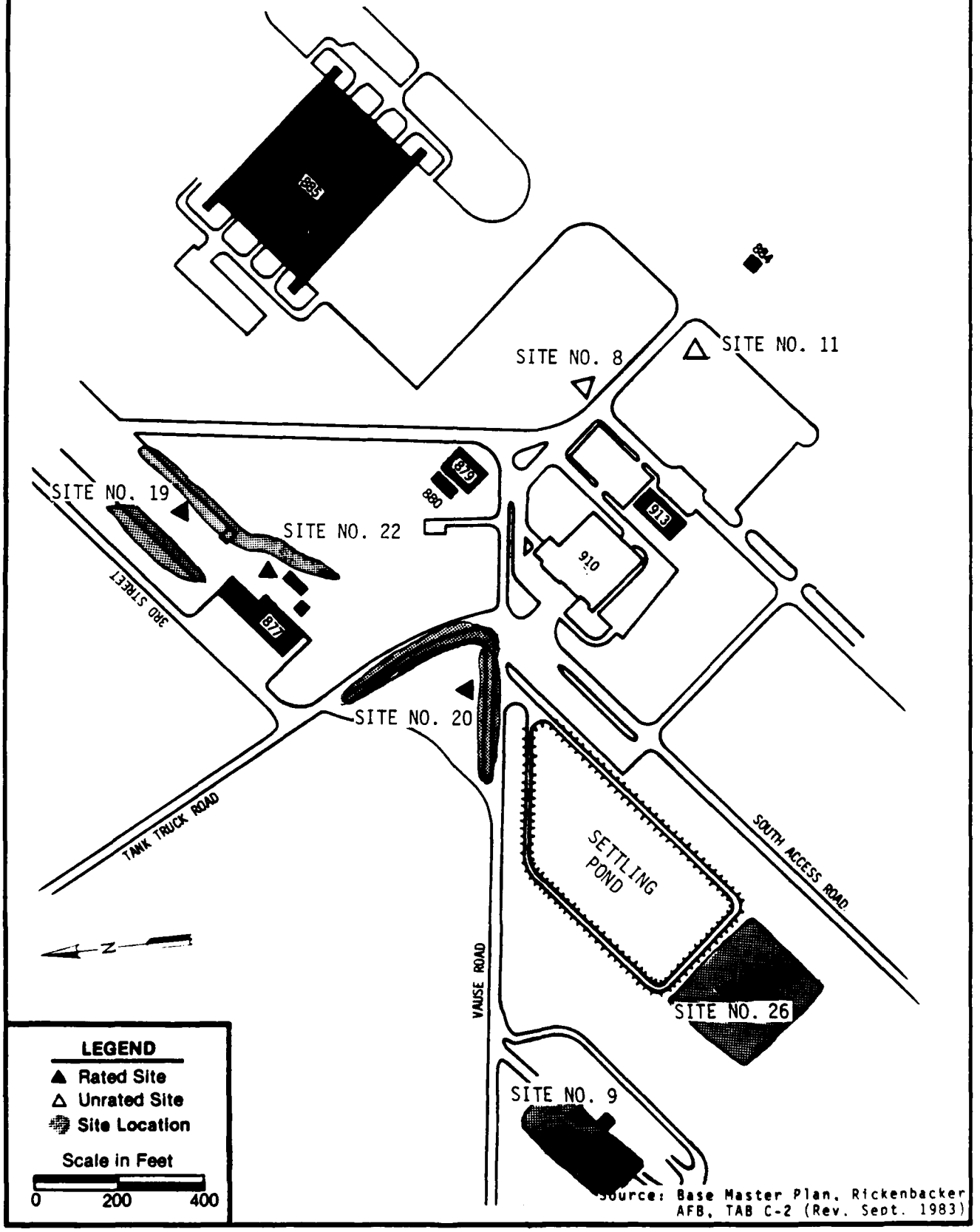


Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Location of Site Nos. 8, 9, 11, 19, 20, 22 and 26 at Rickenbacker ANGB, Columbus, Ohio.

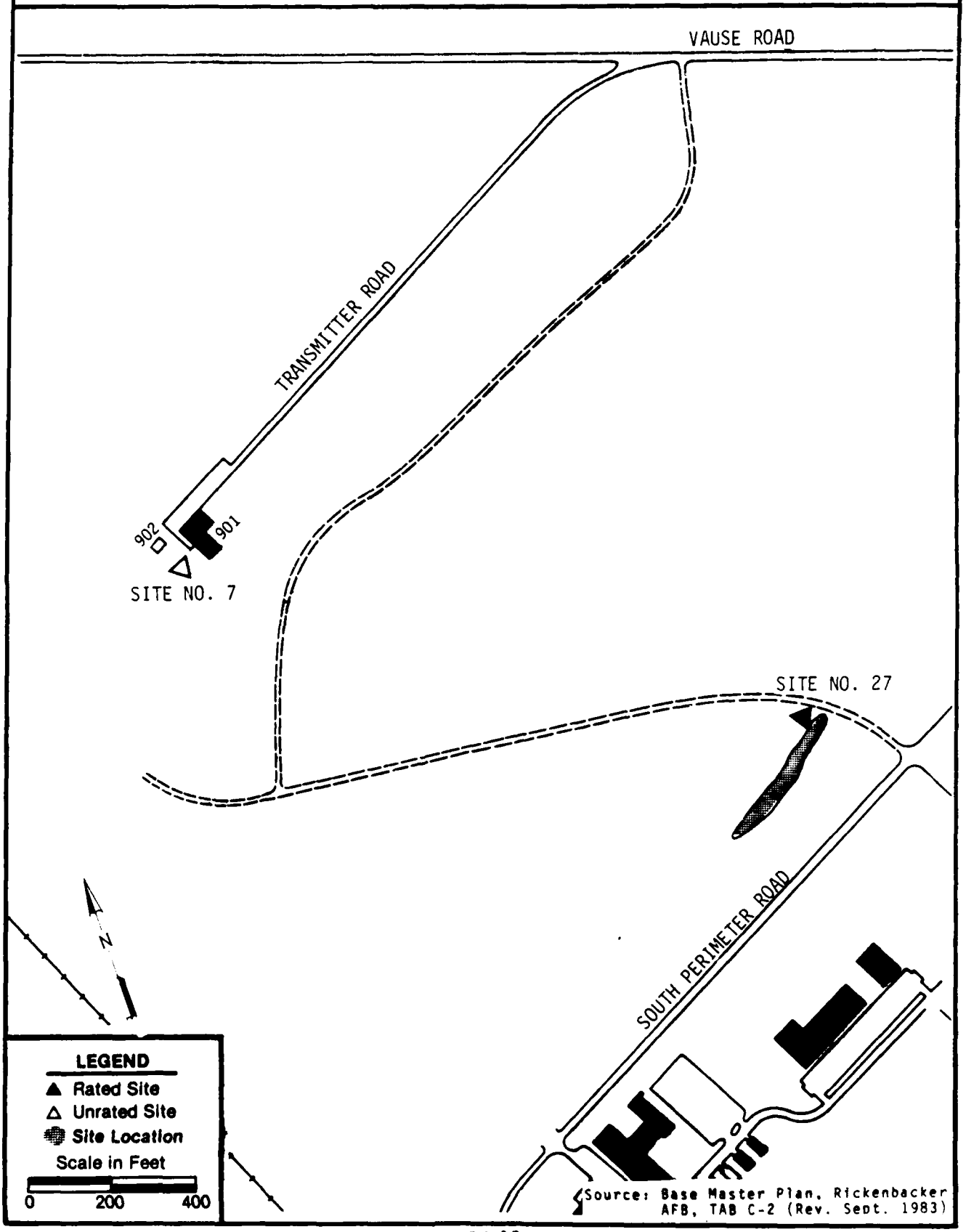
Figure 3D.



Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

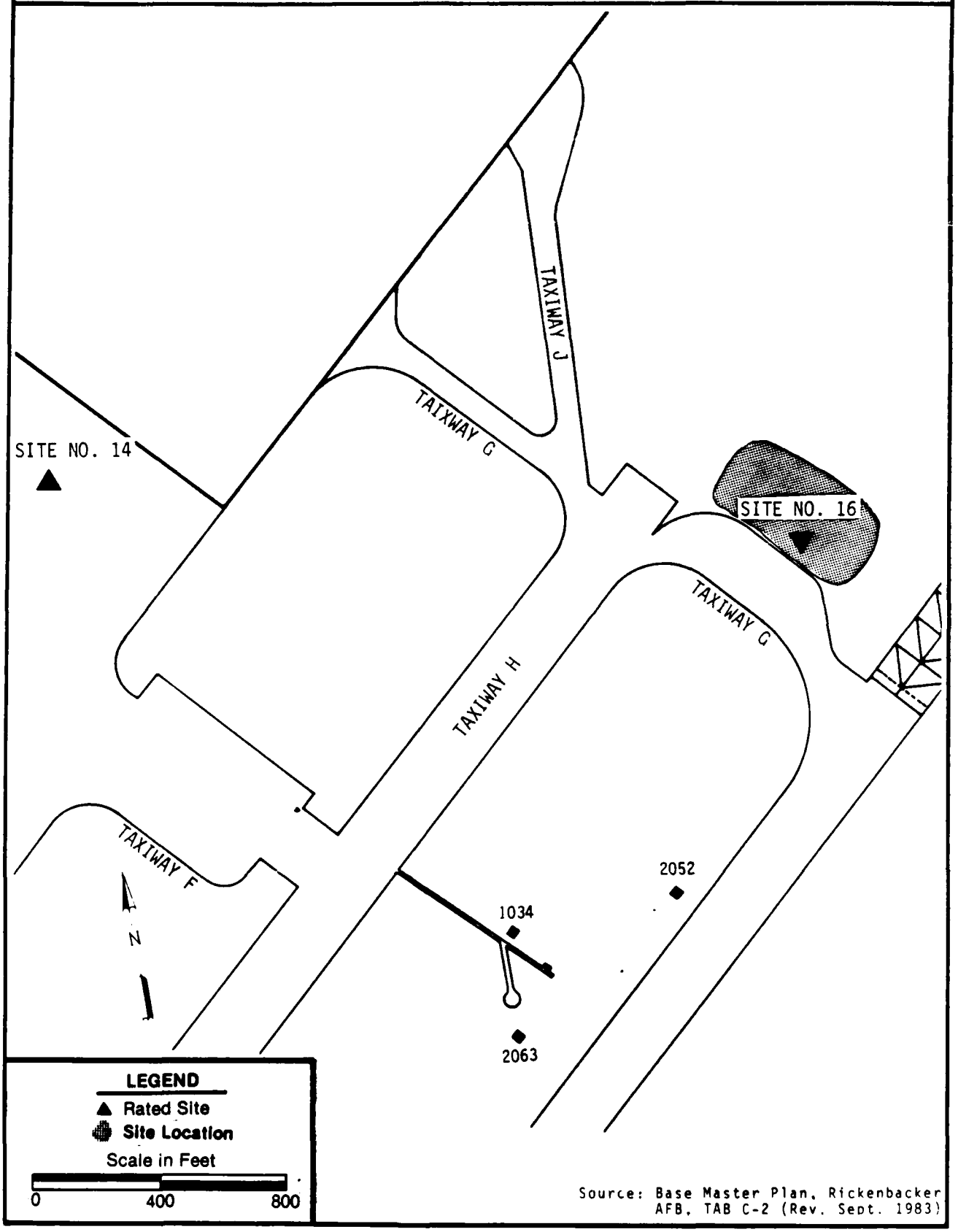
HMTC

Figure 3E.
Location of Site Nos. 7 and 27 at Rickenbacker ANGB, Columbus, Ohio.



HMTC

Figure 3F.
Location of Site Nos. 14 and 16 at Rickenbacker ANGB, Columbus, Ohio.

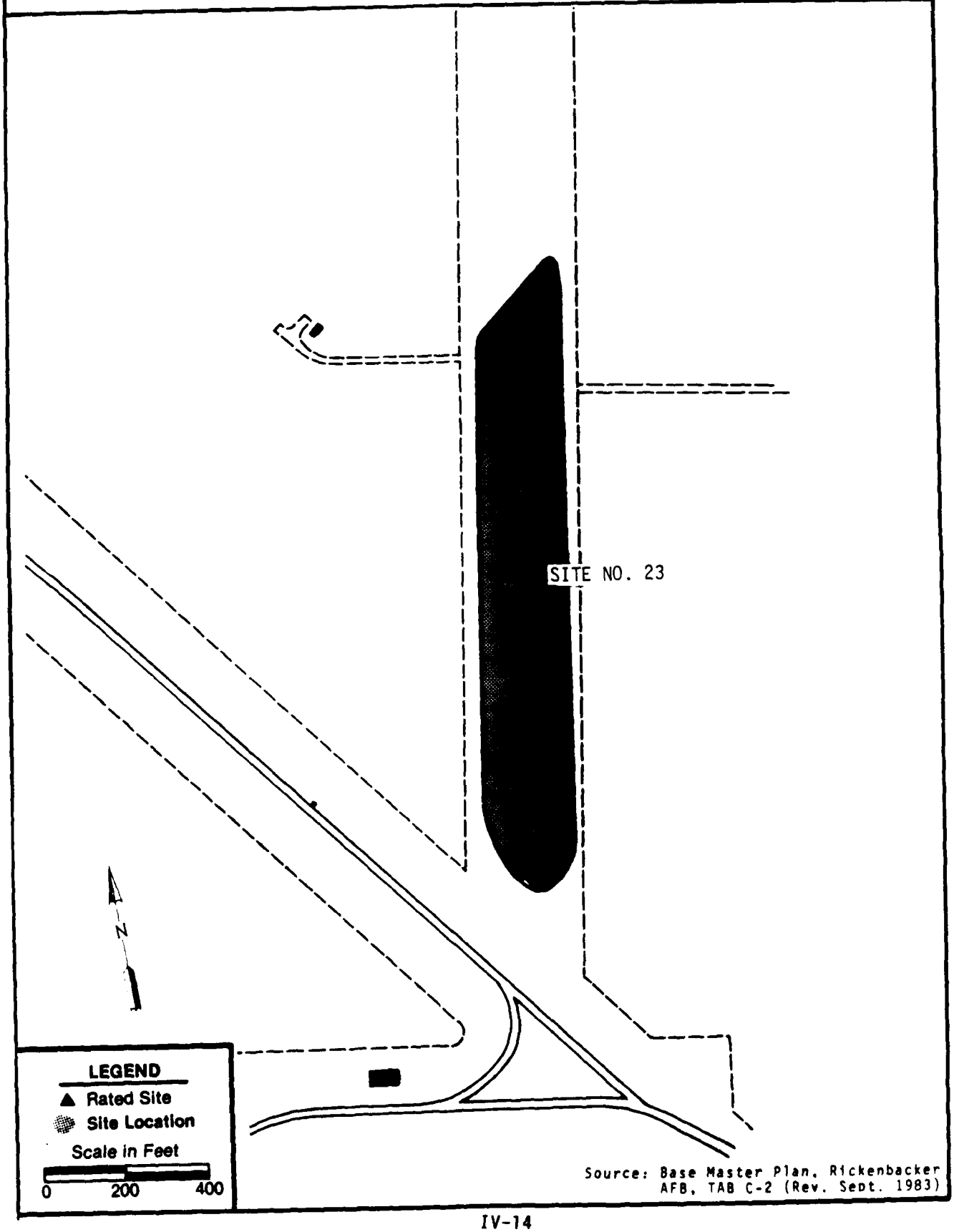


Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Figure 3G.

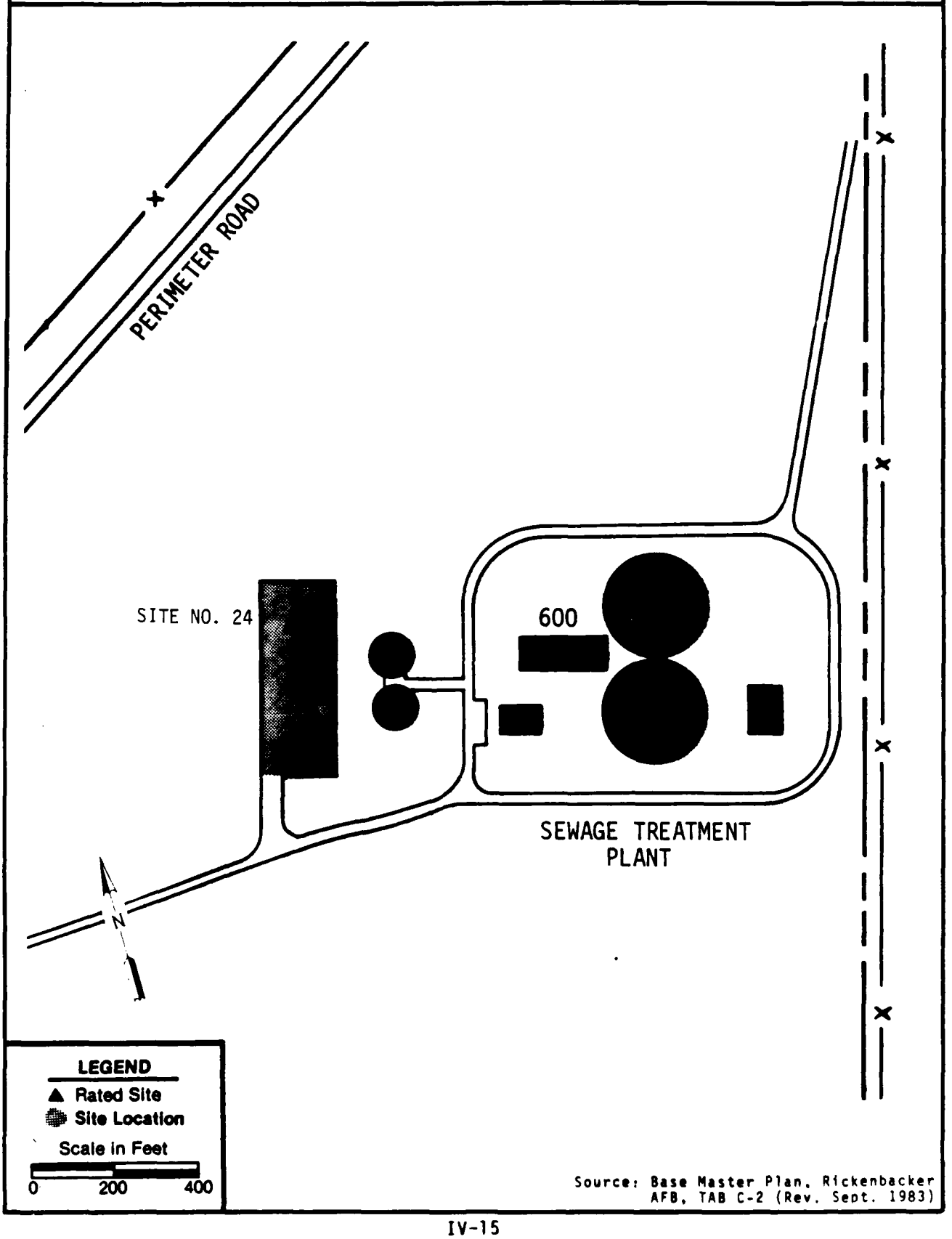
Location of Site No. 23 at Rickenbacker ANGB, Columbus, Ohio.



Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

HMTC

Figure 3H.
Location of Site No. 24 at Rickenbacker ANGB, Columbus, Ohio.



Source: Base Master Plan, Rickenbacker AFB, TAB C-2 (Rev. Sept. 1983)

in these tanks was used engine oils, hydraulic fluids, and waste fuels derived from aircraft and vehicle maintenance activities. It was also reported that oils (dielectric fluid) drained from electrical transformers were deposited in these tanks. Whether these oils contained polychlorinated biphenyls (PCBs) is not known. In 1982, it was discovered that one of the tanks had a broken stand pipe and that some loss of contaminants occurred. A precise record of the amount of waste released was not available. Due to the location of the tanks near underground drainage pipes, it is estimated that the the majority of the waste that leaked from the tank entered the storm drainage system.

A drum storage area is located immediately adjacent to the USTs described above. Because of its close proximity, the drum storage area will also be considered with the underground tanks as Site No. 1. A number of drums have been stored at this location since 1984. Not all of the drums are full and the exact nature of the contents of those drums that are full, or partially full, could not be determined. It is known that some of the drums contain solvents and paint strippers.

Because this site has been used for 36 years as a hazardous waste storage area, application of a HAS was considered necessary. One known spill was reported here and it is not unlikely that other, unreported spills, may also have occurred.

The age of the tanks at this site increases the probability that they may be leaking. Interviewees have reported that the tanks presently at this site have not been replaced since 1950. An American Petroleum Institute (API) study indicates that the probability, under "typical soil conditions", that a steel tank 20 years old or older is leaking, is 99.0 percent (Artz, 1985). Whether this particular tank at Site No. 1 is leaking cannot be concluded from this study, but additional IRP work should be performed to make this determination. Although the contents of the tanks are not closely monitored, there were no reports of noticeable disparities between the volume of materials placed in the tanks, and that which was removed. It was therefore assumed, for purposes of scoring under HARM, that the quantity of waste released at this site (including

the one documented release) fits into the range of a "small quantity" (under 1,000 gallons) release as defined in HARM.

This site scored relatively low under HARM, and is listed as priority ten in Table 2. However, there are some limitations to the use of HARM in prioritizing sites. Occasionally, scoring under HARM results in several sites with equivalent scores which, when evaluated in a more qualitative manner, are considered to present varying degrees of potential hazard. HARM also occasionally results in the prioritization of less hazardous sites above sites which, when evaluated using more comprehensive means, are considered to be less hazardous. Conditions at Site No. 1 suggest that it's hazard priority should precede that of Site No. 14 (KC-135 Crash Site) and Site No. 27 (Drainage Ditch Near Landfill), which occupy the 8 and 9 priority positions respectively. At Site No. 27, a large portion of the chemicals released were washed off base in a drainage ditch. Thus, the total quantity of contaminants potentially present on base is substantially less then the total amount spilled. As noted, the age of underground storage tanks at Site No. 1 make them susceptible to leakage. Leakage from these tanks (if indeed they are leaking) presents a more significant threat to base drinking water than Site Nos. 14 and 27, because the tanks are underground and nearer the water table.

Site No. 2 - JP-4 Bulk Storage Tank Farm (HAS-66)

This site consists of a diked area where six 1-million-gallon capacity, aboveground, floating roof, welded steel, fuel storage tanks are located. Only three of these tanks (Nos. 824, 825, and 826) are owned by the Ohio ANG; the remaining three are owned by the RPA. RPA and Ohio ANG tanks are situated in separately diked areas.

Interviewees indicated that several spills have occurred at this site in the past. In 1979, 1,000 gallons of JP-4 leaked from one of the Ohio ANG tanks. A spill response team at Rickenbacker was able to contain the leak, and 900 of the 1,000 gallons was recovered.

Although since removed, a 2,000-gallon waste fuel storage tank was also located in the diked area belonging to Ohio ANG. Visible signs of leakage were observed at this tank when it was in place, according to interviewees.

Several spills have also occurred in the area of the tank farm that currently belongs to the RPA. One 60,000-gallon spill of JP-4 occurred in 1980. The majority of this spill was recovered. In September 1983, a 10,400 gallon spill occurred from tank No. 828. Tank No. 828 is the center tank of the three RPA tanks. At the time of this spill, the RPA had not yet taken possession of the tank, which then belonged to the Ohio ANG. Base records indicate that 7,600 gallons of the JP-4 was recovered. The recovered fuel was burned in fire training exercises. Auger holes were drilled in the area surrounding the spill in an attempt to delineate the extent of fuel saturation of soils. Once the perimeter of the spill saturation zone was distinguished, soils within this zone were removed until a contaminant free depth was encountered. This resulted in the removal of approximately one and one-half feet of clay from around the tank. Removed soils were replaced with clean compacted clay. Following this spill, and the corrective measure taken at tank no. 828, the earth inside both the Ohio ANG and RPA diked areas was regraded and rediked, and the Ohio ANG dike sealed with asphalt. Interviewees reported that several spills have occurred from the RPA tanks since they began using these tanks in March, 1986.

Unless recovered, spills from the tank farm area either volatilized, seeped into the ground, or flowed through the storm drainage ditch system and into a 7,000 gallon capacity OWS located downstream.

A HAS is necessary to numerically assess potential dangers to ground and surface water near this site. Although the exact quantity of unrecovered fuel released at this site is not known, it is known that this quantity exceeds 4,000 gallons. Thus, when applying a HAS to this site, calculations were made using the value corresponding to a "large quantity" spill under HARM.

Site No. 3 - JP-4 Pumping Station No. 4 (HAS-65)

In 1976, a 25,000-gallon spill of JP-4 occurred at this location as a result of a ruptured fuel line. Approximately 1,000 gallons of fuel was directly recovered or recovered through spill absorption devices. Fuel that was not recovered either evaporated, was absorbed into the ground, or entered the base drainage system from the west side of the base. Spills entering the drainage system at this point flow towards, and through OWS No. 3102 (Figure 2) before exiting into a tributary of Big Walnut Creek.

A HAS was applied at this site because of the large quantity of JP-4 released, with only minimal recovery, and the consequent potential impacts to surface and groundwater resulting from the spill. Because the net release at this site exceeded 4,000 gallons, HAS calculations were made using the value corresponding to a large quantity spill.

Site No. 4 - JP-4 Pumping Station No. 5 (HAS-54)

This site consists of the area in the vicinity of Pumping Station No. 5 as shown in Figure 3c. Two hundred gallons of JP-4 fuel was spilled here in 1985 as a result of a tank overfill. None of the fuel was recovered, the spillage either seeped into the ground or flowed into the storm base drainage system. Due to the recent occurrence of the spill and the occurrence of numerous other spills in the vicinity which could potentially impact local groundwater or surface water, application of a HAS was necessary.

Site No. 5 - Lateral Safety Zone Spill Area (HAS 63)

Interviewees noted that in 1972, a large spill (80,000 gallons of JP-4), probably emanating from Pumping Station No. 7, occurred at this location in the area alongside of the runway. The fuel spread on the ground, covering the area outlined in Figure 3c, and was either absorbed into the soil, flowed into the base storm drainage system, or evaporated. In 1985, another spill occurred in this same area as a result of a tank overfill. Six-hundred gallons of JP-4 was

spilled, none of which was recovered. This spill also either volatilized, was absorbed into the ground, or entered the base storm drainage system. The significant quantity of fuel said to have been released at this site, and the consequent impacts of spilled materials on local surface and groundwater, makes a HAS necessary. Because the net release at this site exceeded 4,000 gallons, HAS calculations were made using the value corresponding to a large quantity spill.

Site No. 6 - Underground Storage Tank at Base Filling Station (HAS-54)

In 1985, approximately 100 gallons of unleaded fuel leaked from an underground storage tank at the base gas station when an unsecured tank floated and ruptured a line connection. Due to the site's proximity to nearby base drinking water wells, an application of a HAS was felt necessary.

Site No. 7 - No. 2 Fuel Oil Tank Area at the Transmitter Station (Unrated)

Interviewees indicated that approximately 200 to 500 gallons of No. 2 fuel oil was spilled on the ground at this site when an aboveground tank overflowed during filling. The fuel that spilled at this site was absorbed into the ground or volatilized, with no recovery.

Because the U.S. Army Corps of Engineers (COE) is currently performing a detailed analysis of the entire landfill area on which this site is located, this site will not be rated, and is given no further analysis in this report. Monitoring and sampling performed by the COE should indicate any potential hazards presented by this relatively minor spill. Should further IRP work be necessary at this site, recommendations for such work should be based upon the findings of the COE's investigation.

Site No. 8 - Storm Sewer Grate Paint Dump Location (Unrated)

This site is located near the aircraft parking apron about 150 feet east of Building 912. The site consists of a storm drain into which residual paints

remaining in paint cans have been dumped throughout the years. Because the drain into which these paints were dumped connects to the storm drainage system, the dumping site itself was left unrated. If residual contaminants from hazardous waste disposal activities at this site persist in the storm drainage ditch which ultimately receives the wastes, they should be detected in the monthly National Pollutant Discharge Elimination System (NPDES) monitoring, or through detection techniques recommended for Site No. 25 (Storm Drainage Ditch System). Therefore, no further IRP work is necessary at Site No. 8.

Site No. 9 - Salvage Yard, Facility No. 906 (HAS-55)

This location is used as a storage yard for pieces of equipment, scrap, and drums. Interviewees reported that hazardous materials have been stored at this location on and off over the years, and that some leakage has occurred.

This same location was once used as a storage area for the 160th Civil Engineering Flight who stored drums of pesticides, including dieldrin, malathion, diazinon, and chlordane here. In May, 1983, some of these drums caught fire and were extinguished with water. Consequently, runoff from the water used to quench the flames became contaminated with the above-named pesticides. Runoff from this incident either drained into nearby drainage ditches or was absorbed into the ground. Assuming some of the pesticides were destroyed in the fire and some remained in the drums after the fire, the quantity released at this site is not thought to exceed two drums.

Because of the past use of this site as a temporary storage area for hazardous material, and because of an observed pesticide release, a HAS was considered necessary.

Site No. 10 - Location of JP-4 Fuel Line Rupture (HAS-56)

This site is located along the length of the aboveground fuel line running

behind Bldgs. 848 and 849. In 1982, a portion of the fuel line ruptured and spilled an unspecified, but reportedly large quantity of JP-4 on the ground. Interviewees noted that the leaking pipe was not detected for several days and the ground in this area was saturated with fuel for a "long time." Based on this evidence, it was assumed for the purposes of HARM scoring that upwards of 4,000 gallons of fuel was released at this site. Currently, there are no visible signs of environmental stress in the area, and the ground surface is no longer saturated. A HAS was necessary at this site because of the large quantity of fuel reportedly spilled, the apparent persistence of the absorbed contamination at the site, and the proximity of the site to base drinking water wells.

Site No. 11 - Ruptured Fuel Line Adjacent to Building 884 (Unrated)

On March 15, 1984, a valve on an inactive but pressurized fuel line ruptured, resulting in a loss of approximately 400 to 500 gallons of JP-4. Approximately 200 to 300 gallons on this spill was lost to the storm drainage system. The remaining fuel was absorbed into the ground. Auger holes were dug around the spill perimeter and approximately 200 gallons were recovered from these holes. Water entering the holes was pumped periodically to retrieve residual contaminants or contaminated groundwater. The majority of the fuel that spilled into the surface water drainage ditch was contained in a oil/water separator downstream and prevented from flowing offbase. Contaminated soil was excavated from the spill area and removed, and the hole refilled with soil from another location.

A HARM rating was not applied to this site since approximately 95 percent of the spilled contaminants were reported to have been recovered from the site or from the downstream oil/water separator, and the contaminated soil was removed.

Site No. 12 - Old Drum Storage Area (HAS-46)

This site consists of an outdoor concrete pad and adjacent drainage ditch.

For several years prior to 1984, the concrete pad was used as a drum storage area. Some of the drums stored at this location were empty, others were full or partially full. Interviewees stated that the contents of the drums were not readily determinable because of faded or absent labeling. Base environmental personnel had samples from the drums tested to determine the contents. Analysis revealed that many of the drums contained only rainwater, whereas others contained methyl ethyl ketone, other solvents, and paint strippers. It was reported that the contents of some of these drums was poured into the nearby drainage ditch, therefore, the ditch was also included as part of this site. The ditch is also of concern because if drums stored on the concrete pad ever leaked, it is likely the contaminants were washed into the drainage ditch via rainwater runoff. The exact quantity of hazardous materials that leaked or were dumped at this site could not be quantified. However, interviewees have indicated that the quantity does not exceed 20 drums; thus, under HARM, this is considered a "small quantity" release. The drums that were stored at this site have been removed and are now stored at the drum storage location described in Site No. 1. Further IRP work is necessary at this site to determine if contamination is present which may pose potential hazards to likely human receptors (i.e., consumers of base well water).

Site No. 13 - RB-47 Crash Site (Unrated)

In 1958, a RB-47 aircraft crashed during takeoff on the runway in the lateral safety zone area between taxiways C and D. Upon crashing, the plane ignited, and it is estimated that much of the fuel carried onboard was consumed by the flames before the fire was extinguished. It was determined that a HAS rating was not warranted at this site since most of the fuel that spilled at this site was consumed in the fire.

Site No. 14 - KC-135 Crash Site (HAS-63)

In 1960, two KC-135 refueling aircraft collided in a fog on the aircraft parking apron near Taxiway F. Interviewees reported that up to 10,000 gallons of fuel may have been lost when the planes collided. The approximate location of the crash and spill site is shown in Figure 3. A HAS was considered necessary at this site due to the quantity of fuel lost and the proximity of this site to base drinking water wells. Since the actual site where the planes collided is concrete, the grass area immediately downgradient of the crash site will also be considered as part of the site. Further IRP work is necessary at this site to determine if contamination is present which may pose potential hazards to likely human receptors (i.e., consumers of base well water).

Site No. 15 - Fuel Dump Pit at Southwest End of Runway (HAS-53)

This site is located at the southwest end of the base between the two main runways (see Figure 3). The site consists of a flat, broken asphalt area approximately 25 feet wide by 75 feet long. Interviewees reported that this location was used as a fuel dump pit for planes. Aircraft would occasionally release their fuel here prior to going into the hanger for maintenance. No interviewees could be found that actually witnessed planes dumping fuel at this spot and this practice does not occur today. It was reported that the location may have first been used for this purpose by B-17s during the early years of the base in the 1940s.

Due to the intended purpose of this site as a fuel dump, it is not unlikely that aircraft fuels were regularly released in large quantities here; therefore, a HAS was applied and subsequent IRP investigations should be considered at this site to determine if fuels are present in underlying groundwater. The asphalt at this site is cracked, such that liquid contaminants would readily seep into the ground or run off into the drainage ditch behind this site. This drainage ditch, running between the two runways, will also be considered as a portion of the site. A tour of the site revealed no existing signs of environ-

mental stress in the grass area at the edge of the asphalt dump pit. The site was scored on the assumption that the quantities of fuel released at this site are within the HARM "large quantity" range. However, since no first hand accounts of dumping could be obtained, application of a "suspected" Confidence Level factor somewhat reduces the overall Waste Characteristics factor subscore of this site, thus accounting for the site's relatively low ranking.

Site No. 16 - Fuel Dump Pit at Northeast End of Runway (HAS-53)

This site, located at the northeast end of the runway, was used for the same purpose as the fuel dump pit labeled as Site No. 15.

Site No. 17 - Old Entomology Laboratory (HAS-56)

This site is located in the area between the railroad tracks adjacent to Building 428, and is the former location of the base entomology laboratory, which has since burned down. Interviewees indicated that while the entomology laboratory was active at this site, pieces of spray equipment were rinsed outside the building, possibly resulting in small amounts of pesticides seeping into the ground.

Interviewees also stated that several drums of malathion were stored behind the entomology laboratory when the building burned, and that some leakage may have occurred during the fire. The site has since been covered with gravel and is currently used for vehicle parking. Because of this location's past use as a pesticide handling area, a HAS was deemed necessary. The total amount of pesticides released at this site cannot be determined precisely. However, based on interviewee accounts, it is not considered to be above four drums. Additional IRP work is necessary to determine if contamination is present which may pose potential hazards to human receptors (i.e., consumers of base well water).

The 907th Aerial Spray Branch, under the 907th TAG, is located at Rickenbacker ANGB, and is responsible for aerial pesticide spray missions at other bases around the country. However, it should be noted that pesticides used by the 907th are not stored at, or transported from Rickenbacker ANGB, but

are supplied by the base being sprayed.

Site No. 18 - Pesticide Storage Building, No. 412 (Unrated)

Building No. 412 contains drums and containers of pesticides including such substances as Dibrom 14 (100 gallons), malathion (14 drums), 2,4-D (55 gallons), among other pesticides. Also stored here are approximately seven drums of naphtha.

This building is a ventilated, wooden structure, with a concrete floor. The only floor drain is an elevated drain for the emergency eye and body wash; leakage from barrels would not ordinarily enter this elevated drain. A site visit revealed that all the barrels stored at this location were in sound condition and no evidence of leakage was noted. Interviewees reported that no leakage was known to have occurred at this site in the past. Because indications are that pesticides have been safely stored at this site without being released into the environment, a HARM rating was felt unnecessary.

Site No. 19 - North Coal Pile (HAS-64)

Rickenbacker ANGB facilities are heated by a coal fired heating unit (Bldg. 877). The heat plant began operation in 1953. Ohio-mined, high-sulfur coal (4%), saturated with No. 2 fuel oil, is used to power heat plant boilers. There are two open coal storage areas in the vicinity of the heating plant. One consists of a concrete slab immediately behind the heat plant, which has the capability for 6,000 tons of coal storage. Another open coal storage area, an asphaltic concrete slab located southwest of the heating plant, across from Tank Truck Road, has a capacity for 4,000 tons of coal storage.

An open unlined drainage ditch runs beside each of the coal piles. There are no means of runoff containment at either of the coal pits, and consequently the ditches are receptors of storm water runoff tainted with coal leachate. Coal pile leachate is known to contain hazardous constituents which may pose potential threats to surface and groundwater, and ergo to potential human receptors. The following, taken from a survey of six coal piles, is a

list of some contaminants and concentrations typically present in coal pile runoff (Cowan, 1981):

Arsenic - 1 - 480 µg/l
Selenium - 2 - 150 µg/l
Cadmium - < 0.005 µg/l
Chromium - < 0.02 µg/l
pH - 2.5 - 7.0

In addition, coal on the ANGB is soaked with No. 2 fuel oil and this would also be present in runoff.

Although contaminants in the ANGB coal pile runoff may not be present in high concentrations, the cumulative effect of 33 years of coal pile leaching could potentially result in elevated levels of contamination in surrounding soils, surface drainage, and possibly groundwater. An approximation of the area occupied by the coal pile, together with average total annual rainfall at the ANGB, indicates that at the North Coal Pile, approximately 500,000 gallons of runoff drains off the pile yearly. The South Coal Pile, which is smaller, results in somewhat less runoff. Thus, for purposes of scoring under HARM, the value corresponding to a "large quality" release was used for this site.

Visible vegetative stress is evident along the banks of the ditch and in the area immediately surrounding the coal piles. At the North Coal Pile, some coal has spilled into the ditch. There is an obvious discoloration of standing water visible in the drainage ditches. Additional IRP work is necessary at this site to characterize potential threats to surface water and groundwater pathways, and to assess the potential for contaminants to migrate to base drinking water wells.

Site No. 20 - South Coal Pile (HAS-64)

See Site 19 for description.

Site No. 21 - Leaking Drum and Oil Change Area at Water Treatment Plant (HAS-54)

This site consists of a horizontally positioned drum located behind, and just within the fence of the base water treatment facility (Building 418). The drum is labeled WD-30, a petroleum distillate. This site was not identified by interviewees, but was discovered when visible vegetative stress was noticed at this location during the examination of an adjacent site. A drum has apparently been continuously stationed here for quite some time and replaced when necessary. The area for several yards in all directions around tne drum is visibly saturated with an oily substance, most probably the result of chronic leakage from the barrel.

Within several yards of this drum, outside the water treatment plant fence, is the lot where recreational vehicles (RVs) are stored. This site has been frequently used by base personnel for changing the oil in their RVs. Waste crankcase oil was visible on the ground on the day the site was visited, and soil in the immediate vicinity was marked with oil stains, apparently from previous oil changes. Due to the proximity of the above sites to one another, and considering their combined potential for environmental impact through groundwater contamination, a HAS application was considered necessary. The two locations will be considered together as one site. Although the exact quantities of substances released at this site could not be determined, it is assumed to be less than 20 drums or 1,000 gallons which, for purposes of HAS application, makes this a small quantity release.

Site No. 22 - Heating Plant Lube Oil Drum Storage Area (HAS-51)

This site is located between the back of the heating plant building and the storm drainage ditch. It consists of the area under and around approximately 10 barrels labeled lubricating oil and cleaning fluid. Evidence of past leakage is indicated by the surrounding oil-soaked ground.

During events of precipitation, contaminant leachate emanating from the oil-soaked area around the drums flows into a drainage ditch running in back of the drums. Because of visible vegetative and environmental stress in this area, application of a HAS was deemed necessary. Although conditions at the site show obvious contaminant leakage or spillage, it does not appear that large spills have occurred here. Therefore, the site was scored as a "small quantity" release and the total amount of contaminants lost is assumed to be under 1,000 gallons.

Site No. 23 - Fire Training Area (HAS-63)

The Fire Training Area (FTA) is located east of the base runway, just outside the Rickenbacker property boundary near Structure 687. Although this site is not within the ANG property, it is being addressed in the Records Search because the ANG has been the sole user of this site, and as such holds ultimate responsibility for any waste found there.

The FTA consists of several open pits located on a hardpack surface. The pits contain various metal structures used to simulate aircraft fuselages. Flammable liquids are dumped into the pits and ignited for fire training purposes. Fire training exercises have been held at this location at regular intervals since at least the 1950s. Generally, JP-4 is the fuel used in the training exercises although flammable substances, possibly including some waste shop solvents, were also ignited in the fire training pits. It was reported that several thousand gallons of flammable liquids have been disposed of in the fire training pits each year.

Containment structures at the fire training pits consist of a low berm around the perimeter of each pit. At each of the pits, however, the berm has eroded and is sufficiently low to allow runoff to escape from the pit area. Runoff from the FTA that does not evaporate or seep into the ground, flows through an open drainage ditch into an OWS (No. 3320), located near the golf course. A distinct smell of POL product was detectable at the FTA, and the ground in and around the fire training pits was visibly saturated with POL products.

Also at the FTA, are several old cars used for fire training and antiterrorist training activities. These vehicles are also doused with flammable liquids and ignited. There is no form of containment at this location, and, as at the other fire training pits, fuels are either consumed in the flames, volatilized, absorbed into the ground, or carried away as runoff during heavy precipitation. Regular use of the FTA as a disposal site for hazardous wastes, creates a potential for ground and surface water contamination, and therefore a HAS was applied. Receptors of primary concern at this site, as at other ANGB sites, are consumers of ANGB well water.

The FTA and Site Nos. 5 and 14 each received a HAS of 63. This positions the FTA as priority No. 6 in the HAS priority list (Table 2), following Site No. 25 - The Storm Drainage Ditch System, Site No. 2 - JP-4 Bulk Storage Tank Farm, Site No. 3 - JP-4 Pumping Station No. 4, and Site Nos. 19 and 20, the North and South Coal Piles. There are limitations to the use of HARM in prioritizing sites. Occasionally, scoring under HARM results in several sites with equivalent scores which, when evaluated in a more qualitative manner, are considered to present varying degrees of potential hazard. HARM also occasionally results in the prioritization of less hazardous sites, above sites which, when evaluated using more comprehensive means, are considered to be less hazardous. Interviewee reports and evidence of contamination at the FTA, suggest that this site should be prioritized in either the No. 1 or 2 position.

The rating factor which keeps the FTA score relatively low, is its distance from a well. However, the quantity of wastes released at the FTA and its routine use as a disposal area for hazardous waste, justify a higher priority of consideration for this site. With the exception of Site No. 5 (an 80,000 gallon spill site) more wastes have been released at the FTA than at any other spill site or non-containerized disposal site on the ANGB. It is moderately estimated that in excess of 55,000 gallons of JP-4 and other flammable chemicals were released at the FTA. Although much of these flammables burned, it is expected that a significant portion may have permeated the soils underly-

ing the FTA, and may pose a potential threat to groundwater. Site Nos. 2 and 3 (which are prioritized above the FTA), did not involve releases as large as those at the FTA and consisted of single, or at the most, several incidents, and therefore are not considered to present the same degree of hazard. Site Nos. 19 and 20, the North and South Coal Piles, were also prioritized above the FTA. These are sites of chronic releases like the FTA; however, contamination at the coal piles consists of runoff leachate from solids, rather than direct releases of hazardous liquids, as at the FTA. Consequently, hazardous constituents from the coal piles are entering the environment in significantly more dilute form than those at the FTA. Additionally, from experience, old unlined FTA's lacking containment structures often present troublesome sites of contamination on ANG and Air Force bases. Therefore, a higher priority for additional investigation is warranted at this site.

Site No. 24 - Sanitary Sewage Treatment Plant Sludge Beds (HAS-50)

The sludge beds for the sanitary sewage treatment plant are located on the western side of Bldg. 600. The sewage treatment plant was used at Rickenbacker ANGB from the late 1950s until around 1983, when the base was connected to the Columbus municipal sewage system. As the sludge beds filled, sludge was collected and trucked offsite to make room for additional sludge deposits.

Sanitary sewage sludges are typically characterized by the existence of persistent, heavy metal residuals and organics that accumulate over time. Since many shop drains were connected to the plant, it is likely that the sewage treatment plant was the receptor of various industrial shop wastes. This increases the likelihood that potentially hazardous sludges may have been deposited at this location. Consideration of potential threats to groundwater posed by this site make application of a HAS necessary. Because potentially contaminated sludges were deposited at this site for over 30 years, the site was scored on the basis of a large quantity release. However, because the actual make-up of the sludges is unsubstantiated, a "suspected" Confidence Level was used to score the site, which decreases the overall Waste Characteristics subscore.

Site No. 25 - Storm Drainage Ditch System (HAS-70)

The Rickenbacker ANGB environmental narrative indicates that many untreated industrial wastes from base maintenance shops were, in the past, discharged into open storm drainage ditches. Shop personnel reported that small quantities of shop wastes (usually solvents) are still occasionally released into floor drains that exit to the base storm sewer system. However, it was reported that floor drains were not, and are not now the accepted means of disposal for large quantities of industrial wastes. It has been the intention of the base to hook up all industrial and maintenance shops to the Columbus municiple sanitary sewage system, and some shops are currently connected, although many are not. Shops that are not connected to the sanitary sewage system discharge their waste into storm drainage ditches. A network of oil/water separators on the base should succeed in intercepting most POL products before they can exit the base, provided they are functioning properly and have not reached their capacity. Besides wastes entering the storm drainage ditches through shop drains, interviewees also reported that hazardous wastes have, on occasion, been directly dumped into the base drainage ditch system.

Numerous fuel spills have occurred at Rickenbacker ANGB. The Base Spill Prevention, Control and Countermeasures Plan (Revised September 1984) indicates that fuel spills of sufficient quantity, which are not readily absorbed into the ground, will ultimately find their way into base drainage ditches either directly, through storm drain openings, or via rainwater runoff from contaminated soils.

Thus through a combination of spills, industrial discharges, or dumping, it is probable that the base drainage ditch system has received a substantial quantity of contaminants over the years. For this reason, major portions of the base drainage ditch system are considered as a potential hazardous waste site. Water flows through the base drainage system normally only during periods of precipitation. Consequently, small spills and industrial discharges do not always flow directly offbase, but would more than likely tend to accumulate most heavily in areas proximate to actual points of discharge. For this reason, areas along the drainage ditch system near industrial shops or near major spill sites are most suspect.

Rickenbacker has been active either as an Air Force Base or as an ANGB, since 1942. It is therefore estimated, for purposes of applying a HAS, that a "large quantity" of waste has been discharged into the base storm drainage system. Under HARM, a "large quantity" equates to releases, either single or cumulative, totaling 4,000 gallons or more. As of 1984, the ANGB had been in operation 42 years, or in terms of a 5 day work week, 10,920 days. An average release of 0.37 gallons per day would be required to reach the large quantity designation. Although exact figures are not available, interviewee reports, and assumptions base on the fact that as of 1984 many shops were still connected to the storm drainage system, suggests that substantially more then an 0.37 gallons of hazardous waste per day have been released into the storm drainage system. Waste disposal via storm drains was probably more common on the ANGB prior to construction of the main sewage treatment plant in 1980. It should also be noted that Rickenbacker, as an Air Force Base, operated at a significantly higher level of activity than today, and therefore, the volume of industrial discharge was greater in the past. Thus, accounting for materials which may have volatilized upon release into the drainage ditches, or floated immediately offbase in storm water, it still may be reasonably assumed that this site should be scored as a large quantity release.

Surface water samples are taken monthly by the Base Bioenvironmental Engineering personnel, as required under the National Pollutant Discharge Elimination System (NPDES). Samples are taken at points of discharge from the base upstream from Walnut Creek and Big Walnut Creek. If present, pollutant discharges emanating from Rickenbacker ANGB should be detected in the NPDES monthly sampling. A series of NPDES monthly permit reports from Rickenbacker ANGB is included as Appendix F. A HAS was applied to this site, and further work recommended, because of potential threats posed to groundwater by contaminants which were absorbed into the ditch at points where they were discharged. The most likely human receptors to potential groundwater contamination at this site are consumers of base well water.

Site No. 26 - Electrical Transformer Storage Yard (HAS-48)

This site consists of an open storage yard where numerous electrical transformers were continuously stored until approximately 1975. Approximately 25 to

30 transformers may have been stored at this site at any one time. The site is located south of Vause Rd. directly outside the south settling pond fence, east of Bldg. 907.

Interviewees were uncertain if the transformer's dielectric fluid contained polychlorinated biphenyls (PCBs). It was the stated practice that fluid drained from the transformers was deposited into the hazardous waste storage tanks at Site No. 1. Eventually, the transformers themselves were turned into the DRMO.

Although it is known that transformers were stored at this site, it is not known for certain that PCB laden transformers were stored here, or if they were stored here, whether or not they leaked. If the transformers did leak, the amount released is expected to be within the HARM "small quantity" range (below 1,000 gallons). Therefore, the site was scored as a "small quantity" release with a "suspected" Confidence Level.

Site No. 27 - Drainage Ditch Near Landfill (HAS-59)

This site consists of the drainage ditch area adjacent to the landfill gate. Interviewees and base records indicate that on August 20, 1982, an unidentified milky white liquid was apparently dumped into the drainage ditch. Subsequent analyses of liquid samples indicated that the substance was a hydrocarbon-based industrial solvent. Base records indicate that on the day the spill occurred, it remained within the base boundaries, dammed up between two culverts. However, by the following day the spill had washed offbase and through an OWS. Dikes of bagged activated carbon were placed downstream of the spill to absorb contaminants reaching this point. Interviewees did not know how much waste was released at this site, but indicated that the amount did not exceed 20 drums. Factors necessitating a HAS at this site include direct evidence of past contamination, and the potential treats posed to both surface and groundwater because of the sites location within a drainage ditch.

C. Critical Habitats/Endangered or Threatened Species

Discussions with personnel from the Ohio Department of Natural Resources disclosed that there are no indigenous, endangered, or threatened species of flora or fauna in the vicinity of Rickenbacker ANGB. There are no critical habitats, wetlands, or wilderness areas in the vicinity of Rickenbacker ANGB.

V. CONCLUSIONS

- Information obtained through interviews with 23 base personnel, review of base records, and field observations have resulted in the identification of 27 potentially contaminated disposal and/or spill sites on ANGB property.

- Five sites were not scored under HARM or recommended for follow-up IRP investigation. Site Nos. 7 and 8 were not scored because potential contaminants at these sites should, if present, be detected during investigative work performed at other identified IRP sites. Contaminants at Site Nos. 11 and 13 were either recovered or destroyed by fire. Site No. 18, a pesticide storage building, was not rated because there are no reports or evidence to suggest that contaminants have been released at this site.

- Twenty-two of the 27 potentially contaminated sites exhibit the potential for contaminant migration; therefore these sites have been further evaluated using HARM and warrant further IRP investigation.

- No direct or indirect evidence of groundwater contamination was discovered at Rickenbacker ANGB. In the absence of detailed data, the extent of groundwater susceptibility to contamination cannot be positively stated. However, certain geologic and hydrogeologic characteristics existing at the base make groundwater contamination a potential risk. Base drinking water wells, which are located within, or immediately adjacent to base boundaries, are screened within an unconfined, permeable, sand and gravel aquifer. Thus, there are no hydraulic barriers separating shallow groundwater at the the water table level, from deeper groundwater where the wells are screened. Pumping of base wells could potentially influence base groundwater flow toward the wells. Moderately permeable soils (0.6 to 2.0 inches/hr), and a widely fluctuating, relatively shallow water table also contribute to groundwater susceptibility.

- No evidence of offbase environmental stress resulting from past disposal of waste materials was observed in the immediate vicinity of Rickenbacker ANGB. However, there is evidence that releases of POL products exit the base through the storm drainage system. Hazardous materials/wastes exiting the base through the storm drainage system are potentially recoverable at four main oil/water separators, through which all base storm drainage is ultimately channelled. Although the OWS's are located outside the base boundary, the Ohio ANG has retained property rights to them. Rickenbacker ANGB is not the sole discharger into these oil/water separators. The close proximity of some sites to the base boundaries increases the likelihood of offbase contaminant migration via the ground and surface water pathways.

- Some sites on the base may present potential threats to the quality of local surface water. Potentially contaminated shallow groundwater may threaten surface water at points where groundwater discharges into surface streams; or, surface water may be impacted by potential contaminants in the base storm drainage system that are not successfully intercepted by oil/water separators.

VI. RECOMMENDATIONS

There is potential for contaminant migration at Rickenbacker ANGB; therefore, Phase II/IVA investigation is recommended for all of the rated sites. The following general recommendations are intended to aid in the confirmation of the presence of suspected contamination, or to show that no contamination exists.

The Phase I investigation revealed that potential contamination at the majority of the Rickenbacker sites is the result of releases of POL products, due either to spills, leakage, or dumping. Because of the large number of POL releases at Rickenbacker and the close proximity of many sites, it is recommended that Phase II/IVA investigations at POL sites initially consist of soil gas monitoring or other geochemical/geophysical contaminant detection techniques. Such geochemical/geophysical techniques help detect the presence and relative concentrations of subsurface hydrocarbons and organics, and are therefore appropriate for the following potentially contaminated sites:

- Site No. 1 - Hazardous Waste Storage Area, Bldg. 560,
- Site No. 2 - JP-4 Bulk Storage Tank Farm,
- Site No. 3 - JP-4 Pumping Station No. 4,
- Site No. 4 - JP-4 Pumping Station No. 5,
- Site No. 5 - Lateral Safety Zone Spill Area,
- Site No. 6 - Underground Storage Tank at Base Filling Station,
- Site No. 10 - Location of JP-4 Fuel Line Rupture,
- Site No. 14 - KC-135 Crash Site
- Site No. 15 - Fuel Dump Pit at Southwest End of Runway
- Site No. 16 - Fuel Dump Pit at Northeast End of Runway
- Site No. 23 - Fire Training Area
- Site No. 25 - Storm Drainage Ditch System, and
- Site No. 27 - Drainage Ditch Near Landfill

The geochemical/geophysical survey results will provide preliminary data for determining locations that may require remedial action or more extensive investigation. It is recommended, however, that once suspect areas are identified through geophysical/geochemical measurements, confirming monitoring wells and soil borings should be installed in order to fully characterize the site with reference to contaminant identification and plume location. Geophysical/geochemical measurements remedy the problem of hit-or-miss placement of monitoring wells in areas where precise contaminant locations are to some extent undefined. Samples from monitoring wells and soil borings of these sites should be analyzed for petroleum hydrocarbons, and aromatic volatile organics.

Provided below are site specific recommendations for 11 of 22 sites on the ANGB that are recommended for follow-up IRP work. These sites were not included in the preceding general recommendations for geophysical/geochemical investigations because suspected contaminants here are not amenable to detection through geophysical/geochemical means. In the case of the FTA and Site No. 27, specific recommendations in addition to geophysical/geochemical investigations are appropriate.

It is recommended that standard investigation methods (i.e., sediment and soil samples and groundwater monitoring wells) be implemented at the following nine sites to confirm and characterize the existence of potential contaminants.

Site No. 9 - Salvage Yard, Facility No. 906

Ten shallow soil borings should be installed at this site to determine if pesticides spilled here remain in the soil. Borings should be installed to a depth of four feet, using hand augering equipment. Soil samples should be taken at or near the surface, and at the 2 and 4 four foot levels. This sampling represents a preliminary, confirmatory sampling measure , therefore, samples may be composited to reduce analytical requirements. Samples should be analyzed for organochlorine pesticides, and chlorinated phenoxy herbicides. If evidence of contaminants is present in the composite samples, more extensive

soil sampling and groundwater sampling are recommended to determine the specific area and depth of contamination, and whether contamination has contacted groundwater.

Site No. 12 - Old Drum Storage Area

Ten shallow soil borings should be installed at this site, two on each side of the former drum storage pad. Four additional soil borings should be installed into the drainage ditch adjacent to this site where drums of solvents were reportedly dumped.

Each of the borings should be installed to a depth of 4 feet, using hand augering equipment. Samples should be taken at or near the surface, and at the two and four foot levels. At this preliminary, confirmatory sampling stage, samples may be composited in groups of two to reduce analytical requirements.

Soil samples should be analyzed for petroleum hydrocarbons, aromatic volatile organics, and halogenated volatile organics. If contamination is present in significant concentrations, more extensive soil sampling and groundwater sampling are recommended to establish the area and depth of contamination, and to determine if groundwater is contaminated.

Site No. 17 - Old Entomology Laboratory

Eight shallow soil borings should be installed at this site to determine if pesticides released here remain in underlying soils. Borings should be installed using hand augering equipment at locations outside the former building site where pesticides were stored and where spray equipment was washed. Because the building site has been covered with a layer of gravel, and perhaps some fill, initial samples from each bore hole should be taken at a depth several inches below the surface. The remaining samples should be taken at depths of 2 and 4 feet. In this preliminary confirmatory stage of investigations, soil samples may be composited in groups of four.

Samples should be analyzed for the presence of organochlorine pesticides and chlorinated phenoxy herbicides. If contaminants are detected in initial sampling, more extensive soil sampling and groundwater sampling is recommended.

Site No. 19 - North Coal Pile

Soil borings should be installed around the coal storage area in the areas most vegetatively stressed. Soil borings should be installed to a depth of 15 feet, with samples taken at the surface and at five foot intervals, to determine how deeply leachate from the coal pile has penetrated the ground surface. At the borehole closest to the drainage ditch, a water sample should be taken from any groundwater entering the borehole. This sample should be taken on a one time only basis. A sediment and surface water sample should be obtained from the drainage ditch on the southeast side of the coal pile.

All soil, sediment and water samples should be analyzed for petroleum hydrocarbons (because the coal is saturated with fuel oil), EP toxicity - metals, pH, and sulfates.

If contamination is present in soil and groundwater samples, the boring indicating the highest contaminant levels should be extended to a depth of 35 to 40 feet as a monitoring well to determine if vertical transport of contaminants in groundwater has occurred.

Site No. 20 - South Coal Pile

Conditions at this site are equivalent to those at Site No. 19, therefore investigations at this site should parallel those made at Site No. 19.

Site No. 21 - Leaking Drum and Oil Change Area at Water Treatment Plant

Visible contamination, in the form of blackened grease and oil stained soil, is present at this site. Shallow soil borings should be installed at the

center and at the edges of each of the locations at this site to determine the depth and areal extent of contamination. Soil samples should be taken at the surface and at the two and four foot levels, or to a depth where visible contamination is no longer present. Samples from the area around the water treatment plant drum should be analyzed for volatile organic aromatics and petroleum hydrocarbons. Samples from the RV soil change area should be analyzed for petroleum hydrocarbons and metals which may be present in the used oil.

Site No. 22 - Heating Plant Lube Oil Drum Storage Area

Surface soils at this site are visibly stained with lubricating oil from stored drums. Soil borings should be installed at the center and at the edges of this site to determine the depth and areal extent of contamination. Soil samples should be taken at the surface and at the two and four foot levels, or to a depth where visible contamination is no longer present.

Also, because this site is immediately adjacent to a drainage ditch, sediment samples should be taken from the ditch to determine if contaminants are migrating into it. Samples should be analyzed for petroleum hydrocarbons.

Site No. 23 - Fire Training Area

This site consists of three open pits used for fire training activities. In addition to geophysical/geochemical investigations recommended at this site, it is also recommended that soil and water samples be obtained here.

At each of the three fire training pits, shallow soil borings should be installed to a depth of no greater than 15 feet, with samples taken at the surface and at 5 foot intervals. Water samples should be taken from any groundwater entering the boreholes. This water sampling should be done on a one time only basis.

Groundwater monitoring wells should be installed at this site at points showing the highest relative contaminant concentration in geophysical/geochemi-

cal investigation results. Monitoring wells should be installed to a depth of 35 to 40 feet to determine if contaminants have migrated vertically through groundwater. Two monitoring wells should also be installed at points hydraulically downgradient of this site. These wells should be approximately 35 to 40 feet deep.

All soil and water samples should be analyzed for petroleum hydrocarbons, aromatic volatile organics, halogenated volatile organics, and lead.

Site No. 24 - Sanitary Sewage Treatment Plant Sludge Beds

To confirm if contamination is present at this site, two shallow soil samples should be taken from each of the sludge beds. Samples should be obtained at the surface, and at the 2 and 4 foot levels, using hand augering equipment. Soil samples may be composited in groups of two to reduce analytical requirements.

Soil samples from this site should be analyzed for organic compounds and metals. If there is an absence of contamination detected at this site, or insignificant concentrations, no further IRP work is considered necessary. If significant contamination is encountered, more extensive soil and groundwater sampling should be implemented.

Site No. 26 - Electrical Transformer Storage Yard

This site has been used over the years to store used electrical transformers. Shallow soil sampling is recommended to determine if dielectric fluid containing PCBs has leaked onto the ground. Samples should be taken at 12 locations in the storage yard at the surface, and at the 2 and 4 foot levels, using hand augering equipment. In this initial confirmatory sampling phase, samples may be composited in groups of three to reduce analytical requirements.

If no contamination is detected in these initial samples, further IRP work is considered unnecessary at this site. If contamination is encountered, more extensive soil and groundwater sampling is recommended.

Site No. 27 - Drainage Ditch Near Landfill

Concern at this site results from a one time spill of solvents in a drainage ditch. It is recommended that shallow soil borings be installed in the drainage ditch where the spill occurred to determine if contaminates remain at this site. Borings should be installed to a depth of 4 feet, using hand augering equipment. Samples should be taken at the surface and at 2 and 4 foot levels. If the presence of contamination is confirmed at this site, more extensive soil and water samples are recommended. Otherwise, no further IRP work is required at this site.

General Comments

As was noted earlier in this report, the COE will undertake groundwater monitoring investigations of a landfill site previously used by the ANGB. Because the COE is leading this investigation, the landfill was not addressed in this report. However, geological and hydrological data derived from these investigations may prove a valuable source of existing information for evaluating other sites on the ANGB.

Also, it should again be noted that the RPA, a site of commercial air operations, exists as a neighbor to the ANGB and borders ANGB property. There is no evidence to suggest that contamination exists on RPA property, or if it does exist, that it is migrating onto the ANGB. However, the location of the RPA as a potential contaminant source should be considered during Phase II/IVA investigations.

GLOSSARY OF TERMS

1. AQUIFER - A geologic formation, or group of formations, that contains sufficient saturated permeable material to conduct groundwater and to yield economically significant quantities of groundwater to wells and springs.

2. CONE OF DEPRESSION - A depression of the water table or potentiometric surface surrounding a discharge well which is more or less the shape of an inverted cone.

3. CONTAMINANT - As defined by Section 101(f)(33) of SARA shall include, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction), or physical deformation in such organisms or their offspring; except that the term "contaminant" shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under:

   (a) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act,

   (b) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of this Act,

   (c) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress),

   (d) any toxic pollutant listed under Section 307(a) of the Federal Water Pollution Control Act,

(e) any hazardous air pollutant listed under Section 112 of the Clean Air Act, and

(f) any imminently hazardous chemical substance or mixture with respect to which the administrator has taken action pursuant to Section 7 of the Toxic Substance Control Act; and shall not include natural gas, liquified natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

4. CRITICAL HABITAT - An area necessary for the maintenance of a population or an endangered or threatened species.

5. DISCHARGE - The release of any waste stream or any constituent thereof to the environment which is not covered.

6. DOWNGRADIENT - A direction that is topographically or hydraulically downslope, i.e., the direction in which water flows.

7. ENDANGERED SPECIES - Plant of wildlife species designated as endangered by the U.S. Fish and Wildlife Service.

8. GROUNDWATER - That part of subsurface water that is in the zone of saturation including underground streams. Loosely, all subsurface water, as distinct from surface water.

9. HARM - Hazard Assessment Rating Methodology - A system adopted and used by the United States Air Force to develop and maintain a priority listing of potentially contaminated sites on installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981)

10. HAS - Hazard Assessment Score - The score developed by utilizing the Hazardous Assessment Rating Methodology (HARM).

11. HAZARDOUS WASTE - A solid or liquid waste that, because of its quantity, concentration, or physical, chemical, or infectious characteristics may

a. cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or

b. pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

12. MIGRATION (Contaminant) - The movement of contaminants through pathways (groundwater, surface water, soil, and air).

13. PERMEABILITY - The capacity of a porous rock, sediment, or soil for transmitting a fluid without impairment of the structure of the medium; it is a measure of the relative ease of fluid flow under unequal pressure.

14. STRATA - Distinguishable horizontal rock layers separated vertically from other layers.

15. SURFACE WATER - All water exposed at the ground surface, including streams, rivers, ponds, and lakes.

16. THREATENED SPECIES - Plants or Wildlife species designated as threatened by the U.S. Fish and Wildlife Service.

17. WATER TABLE - The upper limit of the portion of the ground wholly saturated with water.

18. WETLANDS - Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

19. WILDERNESS AREA - Areas designated under Federal or State laws as wilderness areas to be managed for their aesthetic or natural value.

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2. Hubbard, G.D., et al., Geologic Atlas of the United States, Columbus Folio (No. 197), United States Department of Interior, United States Geological Survey, Washington, DC, 1915.

3. U.S. Air Force, TAB A-1, Environmental Narrative, Rickenbacker Air Force Base, Columbus, Ohio, 1976.

4. U.S. Geological Survey, Lockbourne Quadrangle, Franklin County, Ohio, 7.5 Minute Service (Topographic), 1974.

5. Department of the Air Force, Strategic Air Command Master Plan, Base Plan, Rickenbacker Air Force Base, Columbus, Ohio, July 1, 1974, Rev., September 30, 1983.

6. U.S. EPA, Federal Register, Volume 47, No. 137, page 31224, Government Printing Office, July 16, 1982.

7. Artz, Nicholas, S., et.al., "Losses of Stored Waste Oil From Below Ground Tanks and the Potential for Groundwater Contamination", proceeding of National Conference on Hazardous Wastes and Environmental Emergencies, Hazardous Materials Control Research Institute, Silver Spring, MD, 1985.

8. Schmidt, James, J., et.al., "Groundwater Resources of Franklin County, Ohio", Ohio Division of Water Bulletin 30, Ohio Department of Natural Resources, Division of Water, Columbus, Ohio, 1958.

9. Cowan, Brent, W., et.al., "Hazardous Waste Identification at Coal-Fired Steam-Electric Stations", Proceedings of the 36th Industrial Waste Conference, Purdue University, 1981.

Appendix A
Resumes of Search Team Members

TIMOTHY N. GARDNER

Environmental Scientist

EDUCATION

M.A., Environmental Biology, Hood College
B.S., Forestry/Resource Management, West Virginia University

EXPERIENCE

Mr. Gardner has five years of technical experience in environmental control and research, with emphasis on risk assessment, chemical safety, radiation safety, hazardous waste management (chemical and radiologic), and activated carbon filtration research. His past responsibilities include site risk assessment, chemical and radioactive waste pickup and storage for disposal at a large cancer research facility, and chemical and radioactive spill control, as well as safety surveys and technical assistance in activated carbon desorption research.

EMPLOYMENT

Dynamac Corporation (1984-Present): Staff Scientist

At Dynamac, Mr. Gardner's responsibilities include site surveys and records searches for the Phase I portion of the Installation Restoration Program (IRP) for various Air National Guard Bases. Efforts include risk assessment, site prioritization, and remedial action recommendations. He has also been a contributing author for a closure-post closure plan for a hazardous waste landfill at Clovis AFB, plans and specifications for the removal of asbestos at several Air Force White Alice sites in Alaska, and the update and revision of a DLA regulation for "Disposal of Unwanted Radioactive Material."

NCI-Frederick Cancer Research Facility (1981-1984): Lab Technician

Mr. Gardner worked in radiation and chemical safety as well as environmental research. His responsibilities included monitoring personal and environmental air quality at work areas where free iodinations occurred, monitoring work areas and equipment for isotope contamination, periodic surveys to monitor compliance with NRC safety regulations, isotope inventory control, transfer of isotopes between licenses, and periodic calibration and maintenance of survey instruments. He was also responsible for radioactive and chemical waste pickup and storage for disposal, and served as an advisor for safety-related matters pertinent to radiation and radioactive waste, chemical safety, and industrial hygiene. In the environmental research division, he was involved in activated carbon desorption studies involving the use of analytic laboratory equipment.

PROFESSIONAL AFFILIATIONS

American Tree Farm Association
Hardwood Research Council
West Virginia Forestry Association

WILLIAM D. EATON

EDUCATION

M.S., hydrogeology/environmental sciences, University of Virginia, 1983
B.A., geology, Susquehanna University, 1978

EXPERIENCE

Eight years of technical, management and field experience in hydrogeology. Involved in projects related to installation of groundwater monitoring wells for the determination of rates of contaminant migration and extent of groundwater contamination resulting from leaking underground storage tanks, uncontrolled hazardous waste disposal sites, and ruptured surface storage tanks. Expertise in groundwater contamination associated with military activities such as fire training exercises and POL, AGE, and NDI activities. Served as the hydrogeologist and principal investigator on four different Installation Restoration-Phase I studies conducted for the Air Force. Through such projects, acquired experience in assessing the health hazards associated with hazardous waste disposal/spill sites, using assessment models such as the Air Force's HARM model and EPA's Hazard Ranking System. Acted as the hydrogeologist and principal investigator in charge of conducting groundwater assessments and remedial alternative studies for nine hazardous waste disposal/spill sites owned by the Navy. These remedial alternative studies included developing cost-estimates and estimates of contaminant transport rates using analytical advection-dispersion models.

EMPLOYMENT

Dynamac Corporation (1983-present): Hydrogeologist

Primarily responsible for describing the hydrogeological characteristics of various hazardous waste sites on military installations throughout the United States in support of the DOD Hazardous Materials Technical Center. Specific duties include: delineation of the extent to which groundwater near the site has been contaminated and the identification of those areas which warrant priority attention; providing technical input regarding cleanup activities to prevent further groundwater contamination; and defining remedial actions to encourage reclamation of the contaminated aquifers and/or unsaturated zones. Preparation of contract specifications for the Remedial Action phase of DOD's Installation Restoration Program (IRP).

University of Virginia (1980-1983): Graduate Teaching Assistant

Taught hydrogeology to undergraduate students while performing research on the bacterial degradation of bromobenzene in simulated groundwater.

R.E. Wright Associates, Inc. (1978-1980): Staff Geologist

Managed project teams involved in groundwater development, environmental geology, and toxic chemical spills, and engineering geology. Has participated in several environmental geology studies dealing with groundwater contamination by organic chemical spills, gasoline and related petroleum products. Responsibilities included implementation of groundwater monitoring, product recovery, and groundwater treatment procedures within diabase, shale, and sandstone subsurfaces, and groundwater development. Organized drilling operations, designed pollutant recovery techniques, and analyzed physical and chemical groundwater data. Has participated in groundwater development projects to determine optimum locations for municipal water wells in terms of water quality, quantity and economic feasibility. For engineering geology projects, has performed fracture trace and lineament analyses related to the prevention of roof failures in underground coal mines and the determination of optimal locations for natural gas wells.

PROFESSIONAL AFFILIATION

Sigma Xi Research Society

PUBLICATIONS/PRESENTATIONS

Changes in Rates of Bacterial Degradation of Bromobenzene in Simulated Groundwater as Effected by Bromobenzene Sorption to SiO_2 and Organic-rich Lake Sediment. Presented at the annual meeting of the American Society for Microbiology, New Orleans, Louisiana, March 1983.

Effect of particles on degradation of bromobenzene in a simulated groundwater environment. Biodegradation, Vol. 6, in press.

Co-authored poster session entitled, "An Engineering Method for the Development of Plans and Cost Estimates for Cleanup of a Hazardous Waste Site," presented at the National Conference on Environmental Engineering, Los Angeles, California, June 1984.

Two methodologies to assess hazardous waste sites. Newsletter of the Hazardous Materials Technical Center, 3(3), 1984.

DONATO R. TELESCA

EDUCATION

B.S., Chemical Engineering, Massachusetts Institute of Technology
B.S., Business Administration, Major in Management, Rutgers University

EXPERIENCE

Mr. Telesca has 37 years of technical and managerial experience in process engineering, pollution control engineering, and solid waste and wastewater management. recent experience in Installation Restoration Program and remedial action for Army, Navy and Air Force. Developed quality assurance program for Corps of Engineers, Omaha. Directed health and safety studies in industry. Principal investigator in projects to identify and evaluate process design, alternative processing systems, characterize waste streams, product intermediates and uses, and disposal options.

Program manager for hazardous waste site cleanup projects involving ambient air monitoring, costing, locating buried drums, landfill excavation, well drilling, and groundwater monitoring; installation restoration program; removal of asbestos; redesign of industrial waste treatment plants; and identification of applicable federal, state and local regulations. Experienced in logistics of multitask projects requiring interdisciplinary field crews at nationwide sites.

EMPLOYMENT

Dynamac Corporation (1977-Present: Manager, Remedial Action and Treatment Department

Supervising ten professionals and supporting personnel in the department. Program manager and directly involved in:

- Phase I Installation Restoration Program, which included records search, interviews and hazardous waste onsite inspections at four Air National Guard, Air Force Bases.

- Development of design, specifications and cost estimates for remedial action for:

  - Removal of asbestos at 33 radar field sites
  - Removal of drums containing chlorinated solvents at NIROP, Fridley, Minnesota
  - Removal of drums containing DDT, Moody AFB
  - Removal of three contaminated tanks at Sacramento Army Depot
  - Removal of jet fuel from two Air Force Bases
  - Development of closure and post-closure plans for waste pile containing munitions and landfill containing hazardous waste (the latter including design specifications and cost estimates for the Phase IV remedial action plan).

- Preparation of statement of work for Remedial Action Plan installation Restoration Program at 12 Air Force Bases.

- Wrote the Quality Assurance Program for the Technical Representative of the Corps of Engineers, Omaha District, for NIROP.

- Directed the study "Thermal Destruction of Low Level Hazardous Wastes in Navy Boilers and Incinerators" which consisted of four phases: Problem Definition, Assessment of State of Technology, Technology projections, and Alternatives and Capability Goals.

- Program manager for a project to "identify and assess potential hazardous waste disposal sites at ten installations operated by the Federal Bureau of Prisons.

- Manages multitask projects requiring interdisciplinary staff.

- Manages crews doing onsite field studies for programs listed earlier.

- Has directed teams making quick response (within 2 days) to emergency situations at locations in New Mexico, Oklahoma, Alaska and California.

- Directed onsite industry studies to assess pollution control systems for reducing inorganic mercury in waste streams; also studied several industries to develop generic pollutant standards for industries using similar processes (unit processing studies); e.g., hydrocarbon chlorination.

- Investigator on EPA hazardous waste listing program under RCRA.

- Studied process redesign and engineering controls for several DOD fabrication and maintenance operations, including degreasing, electroplating, paint still bottoms and sludges.

- Characterized wastewater industrial discharges in a study of 343 industries; chemical and physical data were used to establish pollutant impact, and the need for engineering controls, wastewater stabilization ponds, onsite treatment systems and land disposal systems.

Electro-Nucleonics Laboratories, Inc. (1973-1977): Director of Manufacturing

Responsible for establishing protocols for production and adherence to quality control standards. Also assisted in establishing standards and techniques in radioimmunoassay diagnostic work.

Responsible for specifications, and purchase of instrumentation used in the manufacturing facilities. Was responsible for the disposal of regular biological and radioactive waste.

W. R. Grace and Company (1961-1973): Manager of Process Development

Evaluated regulatory compliance of W. R. Grace Nuclear Reprocessing plant in New York for hazardous waste disposal methods. Where such methods were unsatisfactory, designed improvements such as removal of contaminated filters in high radioactivity area; redesign of collection system for hazardous wastewater; design of procedures for burying the radioactive liquids and solid wastes received from outside the plant. Sampled New York State waters and took soil samples from surrounding farms to determine the extent of contamination by hazardous materials.

Designed new manufacturing procedures to reduce generation of hazardous waste from polycrystalline silica manufacturing. Designed, reviewed and implemented the procedures for disposal of hazardous wastes which included chlorinated hydrocarbon, hydrochloric acid, sodium hydroxide and by-products from the manufacturing process.

Evaluated existing procedures and recommended changes in the collection and disposal of hazardous solids and liquids, including heavy metals, acids, bases and organometals.

For Bechtel and Nuclear Fuel Services certified that construction of a nuclear reprocessing plant met all specifications for disposal of hazardous wastes, including radioactive uranium and daughter products, acids, bases and alcohols. Also assisted in the installation and operation of continuous sampling of plant streams discharging into state waters.

As plant manager of Nuclear Development Facility and Ceramic Facility, was responsible for process procedures and development of equipment. Also produced development quantities of nuclear fuels. Was responsible for collection of solid and liquid radioactive wastes, which were generated in the facility. Redesigned distillation system incorporating infrared detector instrumentation for control of distillation column.

As manager of Process Development, had technical and administrative responsibilities for four chemical engineers and ten technicians. Responsible for control of gaseous, solids, and water emissions from operating equipment. Worked with spray towers, cyclones, hydroclones, filters, spray dryers, etc.

As Staff Project Engineer of Division General Management Group, had technical and administrative responsibilities with regard to expansion projects.

As Production Manager of Chemicals Division, had management responsibilities for production, maintenance and engineering development, quality control and waste disposal for seven producing units. Some o the products produced were: rare earths and polishing compounds, raney nickel, silica gel, desiccant clay, sodium silicate, cracked catalysts and specialty catalysts.

As Project Manager of Water Processing Department, worked primarily on an M&O proposal for an Office of Saline Water contract. Assisted in development of anticorrosion studies for desalination equipment.

Grace Electronics Chemicals, Inc. (1960-1961): Vice President and General Manager; President, International Metalloids

General management responsibilities for overall operation of a silicon monocrystalline production, including P&L statements and direct manufacturing costs.

International Metalloids (1959-1960): Vice President and General Manager

Designed standard operating procedures for polycrystalline silicon production, including control technology for gaseous, liquid and waste emissions. Redesigned instrumentation for production of high-purity polycrystalling silicon at thermal cracking furnaces. Was directly responsible for adherence to Puerto Rican regulations regarding hazardous wastes.

Davison Chemicals Company (1954-1959): Chemical Engineer

Developed processes for catalysts, projecting them from scale to preproduction quantities. Redesigned instrument on process equipment at alumina plant to reduce loss of pentasol (5-carbon chain alcohol).

Was responsible for operation and maintenance of a recycle air system in the tabletting area of the plant. Was a member of the engineering team representing Grace at the Maryland Clean Water Committee meetings, where standard methods of sampling and control of liquid wastes were formulated.

Hercules Powder Company (1948-1954): Senior Chemical Engineer

Designed instrumentation and changes in plant processes to reduce contamination of waste streams. Process changes were developed to reduce pH, COD, BOD, solids, and total volume.

Invented a new production process and instituted new procedures required for the collection and proper disposal of chlorinated rubber and chlorinated off-grade product, carbon tetrachloride, rubber waste and hydrochloric acid waste.

Developed procedures for the collection and disposal of hazardous wastes resulting from the manufacture of pilot plant log sizes of sodium carboxymethyl cellulose, plasticizers and other organic based products.

Supervised the operations for disposal of hazardous waste materials from the nitric acid manufacturing unit, sulfuric acid concentrations, nitrocellulose manufacturing and packaging facilities, alcohol distillation unit and cellulose acetate manufacturing facilities.

MIT Chemical Warfare Development Laboratory; U.S. Naval Gun Factory; Marin Manufacturing and Supply Company (1940-1947): Senior Engineer and Draftsman

Made original layouts and designs on various mechanical equipment.

AFFILIATION

American Institute of Chemical Engineers

PUBLICATIONS AND PRESENTATIONS

Telesca, D.R., "The Adsorption of Ethylene-Ethane and Ethylene-Propylene on Activated Carbon." Massachusetts Institute of Technology, Chemical Engineering, 1948.

Telesca, D.R., J.M. Evans, and R.K. Tanita. "Process and Equipment Problems and Solutions in Coal Conversion Processes." Presented at ACS Symposium on Occupational Health Control in Fossil Energy Technologies. Washington, DC, September 10, 1979.

Evans, J.M., R.K. Tanita, and D.R. Telesca. "Comparative Practices in Worker Protection." Presented at ACS Symposium on Occupational Health Control in Fossil Energy Technologies, Washington, DC, September 10, 1979.

Telesca, D.R., J.H. Bochinski, and J.A. Gideon. "Review of NIOSH Control Technology Studies to Date." Presented at the Safety and Health Division Symposium of the American Institute of Chemical engineers, Boston, Massachusetts, August 1979.

Telesca, D.R. "Means of Implementation of Controls." Presented at the NIOSH Symposium on Control Technology in the Plastics and Resins Industry, Atlanta, Georgia, February 27, 1979.

Gideon, J., L. Reed, and D.R. Telesca. "Control Technology for Coal Gasification and Liquefaction." Presented at the Second Annual NIOSH Symposium, Rockville, Maryland, October 29-31, 1979.

Bochinski, J.H., and D.R. Telesca. "Potential Instrumentation Needs in the Occupational Health Area in Coal Conversion Plants." Presented at the 1980 Symposium on Instrumentation and Control for Fossil Energy Processes, Virginia Beach, Virginia, June 9-11, 1980.

Walker, J., R.K. Tanita, D.R. Telesca, and S.P. Berardinelli. "Organic Contaminants in Direct Coal Liquefaction - A Preliminary Assessment." Submitted June 9, 1980, to the American Industrial Hygiene Association Journal.

Tanita, R.K., D.R. Telesca, J. Evans, and S.P. Berardinelli. "A Study of Coal Liquefaction." Presented by D.R. Telesca at the American Industrial Hygiene Conference, May 20, 1980.

Reed, L., J. Gideon, and D.R. Telesca. "Control Technology for Coal Gasification and Liquefaction." Presented at the American Industrial Hygiene Conference, Houston, Texas, May 18-27, 1980.

Telesca, D.R., D.J. Warner, and M.A. Peterson. "Thermal Destruction of Hazardous Wastes in Existing Incinerators and Boilers. Can It Be Done Safely?" Presented at NSWMA 12th Annual Conference on Waste Technology, Memphis, Tennessee, October 18-20, 1983.

Dias, E.K., D.R. Telesca, and D.J. Warner. "A Method for Planning and Costing Hazardous Waste Site Cleanup." Presented at the 1984 National Conference on Environmental Engineering, Los Angeles, California, June 25-27, 1984.

Telesca, D.R., E.K. Dias, and W.D. Eaton. An Engineering Method for the Development of Plans and Cost Estimates for Cleanup of Hazardous Waste Site. Presented at the 1984 National Conference on Environmental Engineering, Los Angeles, California, June 25-27, 1984.

Telesca, D.R., et al. 1982. Problem Definition - Thermal Destruction of Hazardous Wastes in Navy Boilers and Incinerators.

Telesca, D.R., et al. 1983. Feasibility Study for Thermal Destruction of Liquid Hazardous Waste at the Charleston Naval Shipyard, Charleston, South Carolina.

Telesca, D.R., et al. 1984. Assessment of the State of Technology - Thermal Destruction of Hazardous Waste in Navy Boilers and Incinerators.

Telesca, D.R., et al. 1983. Technology Projection - Thermal Destruction of Hazardous Wastes in Navy Boilers and Incinerators.

Telesca, D.R., et al. 1984. Initiation Decision Report on Thermal Destruction of Low Level Hazardous Wastes in Navy Boilers and Incinerators.

Telesca, D.R. et al. 1983. Final Design Specifications. Naval Industrial Ordnance Plant Site Cleanup, Fridley, Minnesota.

Telesca, D.R., et al. 1983. Final Design Calculations and Cost Estimate. Naval Industrial Ordnance Plant Site Cleanup, Fridley, Minnesota.

Telesca, D.R., et al. 1984. Environmental Assessment: Waste Salt Disposal at the U.S. ARmy Rocky Mountain Arsenal.

Telesca, D.R., et al. 1984. Final Design and Specifications: Waste Salt Disposal at the U.S. Army Rocky Mountain Arsenal.

Telesca, D.R., et al. 1985. 60% General Design and Specifications, Hazardous Waste (Asbestos) Removal From and Demolition of White Alice Sites. Alaska Air Command.

Telesca, D.R., et al. 1985. Study of Treatment of Hazardous Wastes at Pearl Harbor Industrial Waste Treatment Plant, Hawaii.

Telesca, D.R., et al. 1985. Statement of Work for Phase IVA Remedial Action Plan. Installation Restoration Program, MacDill AFB.

Telesca, D.R., et al., 1984. Navy Assessment and Control of Installation Pollutants. Confirmation Study for Sites 1, 3, 5 and 9 at the Naval Weapons Support Center, Crane, Indiana.

ERIC A. KUHL

EDUCATION

B.A. Political Science/Environment Policy, St. Mary's College of Maryland

EXPERIENCE

Mr. Kuhl has 3 years of experience in regulatory policy analysis, involving environmental and occupational issues, with emphasis on policy and impact analysis of hazardous waste management alternatives. Previously he has provided analytical regulatory research and comparative analysis of Federal, State, and local environmental regulations including RCRA, CERCLA, OSHA, and HMTC rules.

EMPLOYMENT

Dynamac Corporation (1984 - Present) - Staff Scientist

Mr. Kuhl's responsibilities at Dynamac include site investigations, record searches, and report writing for the Phase I portion of the Installation Restoration PRogram (IRP) for the Air National Guard. Mr. Kuhl also performed similar work for the Department of Justice's Federal Bureau of Prisons. Activities pursuant to these task entail hazardous waste site identification and assessment and developing advisory recommendations for further site investigation. Mr. Kuhl has also authored the Army Materiel Commands Solvent Recovery Regulatory Impact Report and performed regulatory analysis for the Defense Logistics Agency's used drum recycling study.

Automated Sciences Group (1983 - 1984) - Regulatory Analyst

Mr. Kuhl performed regulatory analysis of the Occupational Safety and Health Administration's regulatory dockets for the OSHA Technical Information System. He also assisted in the compilation of technical guidelines for the OSHA Technical Information System.

Aspen Systems Corporation (1982 - 1983) - Document Analyst

Mr. Kuhl's position involved analysis and summarization of documentation; related to a large scale litigation project. The subject matter of the documents related to various aspects of nuclear power plant construction. He was also responsible for screening large numbers of documents to determine their relevance to the case.

PUBLICATIONS

- "Controversies Emerge on OSHA's Hazard Communication Standard", Co-authored, HMTC update, Vol. 4, No. 4, July 1985

- "Used Oil Regulation Proposed" Co-authored, HMTC Technical Bulletin, HMTC update, Vol. 5, No. 4, July 1986.

- AMC Solvent Study, Evaluation of Regulatory Impact on Solvent Recovery, July 1986.

Appendix B
Interviewee Information

Ohio Air National Guard
Rickenbacker Air National Guard Base
Columbus, Ohio

AD-A195 268 INSTALLATION RESTORATION PROGRAM PHASE 1 RECORDS SEARCH FOR THE OHIO NAT.. (U) HAZARDOUS MATERIALS TECHNICAL CENTER ROCKVILLE MD JUN 87 DLA900-82-C-4426 2/3

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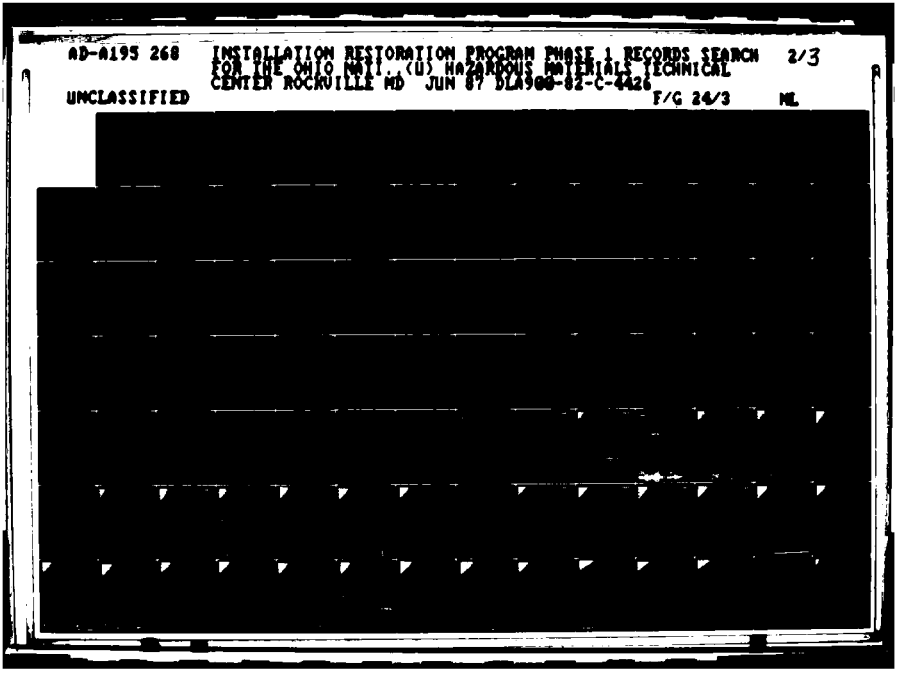

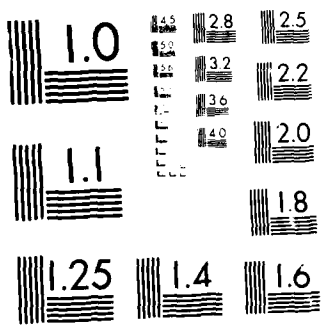

INTERVIEWEE INFORMATION

Ohio Air National Guard
Rickenbacker ANGB, Columbus, Ohio

Interviewee Number	Primary Duty Assignment*	Years Associated with Rickenbacker ANGB
1	Landfill Operator	34
2	Ass't Foreman, Grounds	35
3	Pavement/Grounds keeper	26
4	Structural Foreman, Water and Sewage Supervisor	26
5	Electrical Chief	22
6	Phase Inspection Supervisor	14
7	Phase Inspection Supervisor	14
8	Organizational Maintenance Chief	28
9	Aircraft Maintenance Officer	30
10	Base Civil Engineer	4
11	Environmental Engineer	5
12	Chief of Operations	30
13	Jet Engine Section Supervisor	14
14	Wheel and Pneudraulics Shop Foreman	15
15	AGE Shop Supervisor	15
16	Engine Maintenance Supervisor	15
17	Heating Plant Foreman	4
18	Liquid Fuel Maintenance	10

*Some personnel on this list are associated with AFRES.

INTERVIEWEE INFORMATION (Continued)

Interviewee Number	Primary Duty Assignment*	Years Associated with Rickenbacker ANGB
19	Liquid Fuel Maintenance	10
20	Mechanical Section Supervisor	10
21	Fire Chief	15
22	Aerial Spraying Personnel	15
23	Aerospace Hydraulics Employee	14

*Some personnel on this list are associated with AFRES.

Appendix C
Outside Agency Contact List

OUTSIDE AGENCY CONTACT LIST

1. United States Geological Survey, Reston, Virginia, (202) 648-4301.

2. United States Department of Agriculture, U.S. Soil Conservation Service, Columbus, Ohio, (614) 469-6962.

3. Ohio Department of Natural Resources, Division of Wildlife, Fountain Square, Columbus, Ohio, (614) 265-6330.

4. Federal Emergency Management Agency, Federal Insurance Administration, Flood Map Distribution Center, 6930 A-F San Thomas Road, Baltimore, Maryland 21227 -6227, (800) 638-6620.

Appendix D
USAF Hazard Assessment Rating Methodology

USAF HAZARD ASSESSMENT RATING METHODOLOGY

The Department of Defense (DoD) has established a comprehensive program to identify, evaluate, and control problems associated with past disposal practices at DoD facilities. One of the actions required under this program is to:

> develop and maintain a priority listing of contaminated installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts. (Reference: DEQPPM 81-5, 11 December 1981).

Accordingly, the United States Air Force (USAF) has sought to establish a system to set priorities for taking further actions at sites based upon information gathered during the Records Search phase of its Installation Restoration Program (IRP).

PURPOSE

The purpose of the site rating model is to provide a relative ranking of sites of suspected contamination from hazardous substances. This model will assist the Air National Guard in setting priorities for follow-on site investigations.

This rating system is used only after it has been determined that (1) potential for contamination exists (hazardous wastes present in sufficient quantity), and (2) potential for migration exists. A site can be deleted from consideration for rating on either basis.

DESCRIPTION OF MODEL

Like the other hazardous waste site ranking models, the U.S. Air Force's site rating model uses a scoring system to rank sites for priority attention. However, in developing this model, the designers incorporated some special features to meet specific DoD program needs.

The model uses data readily obtained during the Records Search portion (Phase I) of the IRP. Scoring judgment and computations are easily made. In assessing the hazards at a given site, the model develops a score based on the most likely routes of contamination and the worst hazards at the site. Sites are given low scores only if there are clearly no hazards. This approach meshes well with the policy for evaluating and setting restrictions on excess DoD properties.

Site scores are developed using the appropriate ranking factors according to the method presented in the flow chart (Figure 1 of this report). The site rating form and the rating factor guideline are provided at the end of this appendix.

As with the previous model, this model considers four aspects of the hazard posed by a specific site: possible receptors of the contamination, the waste and its characteristics, the potential pathways for contamination migration, and any efforts that were made to contain the wastes resulting from a spill.

The receptors category rating is based on four rating factors: the potential for human exposure to the site, the potential for human ingestion of contaminants should underlying aquifers be polluted, the current and anticipated uses of the surrounding area, and the potential for adverse effects upon important biological resources and fragile natural settings. The potential for human exposure is evaluated on the basis of the total population within 1,000 feet of the site, and the distance between the site and the base boundary. The potential for human ingestion of contaminants is based on the distance between the site and the nearest well, the groundwater use of the uppermost aquifer, and population served by the groundwater supply within 3 miles of the site. The uses of the surrounding area are determined by the zoning within a 1-mile radius. Determination of whether or not critical environments exist within a 1-mile radius of the site predicts the potential for

adverse effects from the site upon important biological resources and fragile natural settings. Each rating factor is numerically evaluated (0-3) and increased by a multiplier. The maximum possible score is also computed. The factor score and maximum possible scores are totaled, and the receptors subscore computed as follows: receptors subscore = (100 x factor score subtotal/ maximum score subtotal).

The waste characteristics category is scored in three steps. First, a point rating is assigned based on an assessment of the waste quantity and the hazard (worst case) associated with the site. The level of confidence in the information is also factored into the assessment. Next, the score is multiplied by a waste persistence factor, which acts to reduce the score if the waste is not very persistent. Finally, the score is further modified by the physical state of the waste. Liquid wastes receive the maximum score, while scores for sludges and solids are reduced.

The pathways category rating is based on evidence of contaminant migration or an evaluation of the highest potential (worst case) for contaminant migration along one of three pathways: surface-water migration, flooding, and groundwater migration. If evidence of contaminant migration exists, the category is given a subscore of 80 to 100 points. For indirect evidence, 80 points are assigned, and for direct evidence, 100 points are assigned. If no evidence is found, the highest score among the three possible routes is used. The three pathways are evaluated and the highest score among all four of the potential scores is used.

The scores for each of the three categories are added together and normalized to a maximum possible score of 100. Then the waste management practice category is scored. Scores for sites with no containment are not reduced. Scores for sites with limited containment can be reduced by 5 percent. If a site is contained and well managed, its score can be reduced by 90 percent. The final site score is calculated by applying the waste management practices category factory to the sum of the scores for the other three categories.

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE _____

LOCATION _____

DATE OF OPERATION OR OCCURRENCE _____

OWNER/OPERATOR _____

COMMENTS/DESCRIPTION _____

SITE RATED BY _____

1. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site		4		
B. Distance to nearest well		10		
C. Land use/zoning within 1 mile radius		3		
D. Distance to installation boundary		6		
E. Critical environments within 1 mile radius of site		10		
F. Water quality of nearest surface water body		6		
G. Ground water use of uppermost aquifer		9		
H. Population served by surface water supply within 3 miles downstream of site		6		
I. Population served by ground-water supply within 3 miles of site		6		
		Subtotals	_____	_____

Receptors subscore (100 X factor score subtotal/maximum score subtotal) _____

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) _____
2. Confidence level (C - confirmed, S - suspected) _____
3. Hazard rating (H - high, M - medium, L - low) _____

Factor Subscore A (from 20 to 100 based on factor score matrix) _____

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

_____ X _____ = _____

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

_____ X _____ = _____

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		
Net precipitation		6		
Surface erosion		8		
Surface permeability		6		
Rainfall intensity		8		
		Subtotals	_____	_____

Subscore (100 X factor score subtotal/maximum score subtotal) _____

2. Flooding | | 1 | |

Subscore (100 X factor score/3) _____

3. Ground water migration

Depth to ground water		8		
Net precipitation		6		
Soil permeability		8		
Subsurface flows		8		
Direct access to ground water		8		
		Subtotals	_____	_____

Subscore (100 X factor score subtotal/maximum score subtotal) _____

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore _____

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors _____
Waste Characteristics _____
Pathways _____

Total _____ divided by 3 = _____
Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

_____ X _____ = [ ]

1. RECEPTORS CATEGORY

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
A. Population within 1,000 feet (includes on-base facilities)	0	1-25	26-100	Greater than 100	4
B. Distance to nearest water well	Greater than 3 miles	1 to 3 miles	3,001 feet to 1 mile	0 to 3,000 feet	10
C. Land Use/Zoning (within 1-mile radius)	Completely remote (zoning not applicable)	Agricultural	Commercial or Industrial	Residential	3
D. Distance to installation boundary	Greater than 2 miles	1 to 2 miles	1,001 feet to 1 mile	0 to 1,000 feet	6
E. Critical environments (within 1-mile radius)	Not a critical environment	Natural areas	Pristine natural areas; minor wetlands; preserved areas; presence of economically important natural resources susceptible to contamination	Major habitat of an endangered or threatened species; presence of recharge area; major wetlands	10
F. Water quality/use designation of nearest surface water body	Agricultural or Industrial use	Recreation, propagation and management of fish and wildlife	Shellfish propagation and harvesting	Potable water supplies	6
G. Ground-water use of uppermost aquifer	Not used, other sources readily available	Commercial, industrial, or irrigation, very limited other water sources	Drinking water, municipal water available	Drinking water, no municipal water available; commercial, industrial, or irrigation, no other water source available	9
H. Population served by surface water supplies within 3 miles downstream of site	0	1-15	51-1,000	Greater than 1,000	6
I. Population served by aquifer supplies within 3 miles of site	0	1-50	51-1,000	Greater than 1,600	6

II. WASTE CHARACTERISTICS

A-1 Hazardous Waste Quantity

S = Small quantity (5 tons or 20 drums of liquid)
M = Moderate quantity (5 to 20 tons or 21 to 85 drums of liquid)
L = Large quantity (20 tons or 85 drums of liquid)

A-2 Confidence Level of Information

C = Confirmed confidence level (minimum criteria below)

- o Verbal reports from interviewer (at least 2) or written information from the records
- o Knowledge of types and quantities of wastes generated by shops and other areas on base

S = Suspected confidence level

- o No verbal reports or conflicting verbal reports and no written information from the records
- o Logic based on a knowledge of the types and quantities of hazardous wastes generated at the base, and a history of past waste disposal practices indicate that these wastes were disposed of at a site

A-3 Hazard Rating

Rating Factors	Rating Scale Levels			
	0	1	2	3
Toxicity	Sax's Level 0	Sax's Level 1	Sax's Level 2	Sax's Level 3
Ignitability	Flash point greater than 200°F	Flash point at 140°F to 200°F	Flash point at 80°F to 140°F	Flash point less than 80°F
Radioactivity	At or below background levels	1 to 3 times background levels	3 to 5 times background levels	Over 5 times background levels

Use the highest individual rating based on toxicity, ignitability and radioactivity and determine the hazard rating.

Hazard Rating	Points
High (H)	3
Medium (M)	2
Low (L)	1

II. WASTE CHARACTERISTICS--Continued

Waste Characteristics Matrix

Point Rating	Hazardous Waste Quantity	Confidence Level of Information	Hazard Rating
100	L	C	H
80	L	C	M
	M	C	H
70	L	S	H
60	S	C	H
	M	C	M
	L	S	M
50	L	C	L
	M	S	H
	S	C	M
	S	S	H
40	M	S	M
	M	C	L
	L	S	L
30	S	C	L
	M	S	L
	S	S	M
20	S	S	L

Notes:
For a site with more than one hazardous waste, the waste quantities may be added using the following rules:

Confidence Level

- Confirmed confidence levels (C) can be added.
- Suspected confidence levels (S) can be added.
- Confirmed confidence levels cannot be added with suspected confidence levels.

Waste Hazard Rating

- Wastes with the same hazard rating can be added.
- Wastes with different hazard ratings can only be added in a downgrade mode, e.g., MCM + SCH = LCM if the total quantity is greater than 20 tons.

Example: Several wastes may be present at a site, each having an MCM designation (60 points). By adding the quantities of each waste, the designation may change to LCM (80 points). In this case, the correct point rating for the waste is 80.

B. Persistence Multiplier for Point Rating

Persistence Criteria	Multiply Point Rating From Part A by the Following
Metals, polycyclic compounds, and halogenated hydrocarbons	1.0
Substituted and other ring compounds	0.9
Straight chain hydrocarbons	0.8
Easily biodegradable compounds	0.4

C. Physical State Multiplier

Physical State	Multiply Point Total From Parts A and B by the Following
Liquid	1.0
Sludge	0.75
Solid	0.50

III. PATHWAYS CATEGORY

A. Evidence of Contamination

Direct evidence is obtained from laboratory analyses of hazardous contaminants present above natural background levels in surface water, ground water, or air. Evidence should confirm that the source of contamination is the site being evaluated.

Indirect evidence might be from visual observation (i.e., leachate), vegetation stress, sludge deposits, presence of taste and odors in drinking water, or reported discharges that cannot be directly confirmed as resulting from the site, but the site is greatly suspected of being a source of contamination.

B-1 Potential for Surface Water Contamination

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Distance to nearest surface water (includes drainage ditches and storm sewers)	Greater than 1 mile	2,001 feet to 1 mile	501 feet to 2,000 feet	0 to 500 feet	8
Net precipitation	less than -10 inches	-10 to +5 inches	+5 to +20 inches	Greater than +20 inches	6
Surface erosion	None	Slight	Moderate	Severe	8
Surface permeability	0% to 15% clay ($>10^{-2}$ cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	Greater than 50% clay ($>10^{-6}$ cm/sec)	6
Rainfall intensity based on 1-year 24-hour rainfall (Thunderstorms)	<1.0 inch 0-5 0	1.0 to 2.0 inches 6-35 30	2.1 to 3.0 inches 36-49 60	>3.0 inches >50 100	8

B-2 Potential for Flooding

Floodplain	Beyond 100-year floodplain	In 100-year floodplain	In 10-year floodplain	Floods annually	1

B-3 Potential for Ground-Water Contamination

Depth to ground water	Greater than 500 feet	50 to 500 feet	11 to 50 feet	0 to 10 feet	8
Net precipitation	less than -10 inches	-10 to +5 inches	+5 to + 20 inches	Greater than +20 inches	6
Soil permeability	Greater than 50% clay ($>10^{-6}$ cm/sec)	30% to 50% clay (10^{-4} to 10^{-6} cm/sec)	15% to 30% clay (10^{-2} to 10^{-4} cm/sec)	0% to 15% clay ($<10^{-2}$ cm/sec)	8

B-3 Potential for Ground-Water Contamination--Continued

Rating Factors	Rating Scale Levels 0	1	2	3	Multiplier
Subsurface flows	Bottom of site greater than 5 feet above high ground-water level	Bottom of site occasionally submerged	Bottom of site frequently submerged	Bottom of site located below mean ground-water level	8
Direct access to ground water (through faults, fractures, faulty well casings, subsidence, fissures, etc.)	No evidence of risk	Low risk	Moderate risk	High risk	8

IV. WASTE MANAGEMENT PRACTICES CATEGORY

A. This category adjusts the total risk as determined from the receptors, pathways, and waste characteristics categories for waste management practices and engineering controls designed to reduce this risk. The total risk is determined by first averaging the receptors, pathways, and waste characteristics subscores.

B. Waste Management Practices Factor

The following multipliers are then applied to the total risk points (from A):

Waste Management Practice	Multiplier
No containment	1.0
Limited containment	0.95
Fully contained and in full compliance	0.10

Guidelines for fully contained:

Landfills:

- o Clay cap or other impermeable cover
- o Leachate collection system
- o Liners in good condition
- o Adequate monitoring wells

Spills:

- o Quick spill cleanup action taken
- o Contaminated soil removed
- o Soil and/or water samples confirm total cleanup of the spill

Surface Impoundments:

- o Liners in good condition
- o Sound dikes and adequate freeboard
- o Adequate monitoring wells

Fire Protection Training Areas:

- o Concrete surface and berms
- o Oil/water separator for pretreatment of runoff
- o Effluent from oil/water separator to treatment plant

General Note: If data are not available or known to be complete the factor ratings under items I-A through I, III-B-1, or III-6-3, then leave blank for calculation of factor score and maximum possible score.

CNR122

Appendix E
Site Hazardous Assessment Rating Forms

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 1 - Hazardous Waste Storage Area, Bldg. 560

LOCATION Outside Building No. 560

DATE OF OPERATION OR OCCURRENCE 1957 - Present

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	60
Pathways	41
Total 169 divided by 3 =	56

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

56 x 1.0 = 56

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 2 - JP-4 Bulk Storage Tank Farm

LOCATION Tank Truck Road

DATE OF OPERATION OR OCCURRENCE

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION 1979

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X .9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

90 X 1.0 = 90

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	90
Pathways	41
Total 199 divided by 3 =	66

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

66 X .95 = 66

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 3 - JP-4 Pumping Station No. 4

LOCATION Adjacent to Runway Pump Station No. 4

DATE OF OPERATION OR OCCURRENCE 1976

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	113	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 63

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

90 X 1.0 = 90

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points f direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	63
Waste Characteristics	90
Pathways	41
Total 194 divided by 3 =	65

Gross Total Sc

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

65 X 1.0 = 65

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE "Site No. 4" JP-4 Pumping Station No. 5

LOCATION Adjacent to Runway Pump Station No. 5

DATE OF OPERATION OR OCCURRENCE 1985

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

60 X 0.9 = 54

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

54 X 1.0 = 54

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.				
			Subscore	
B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.				
1. Surface water migration				
Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
			Subtotals 44	108
			Subscore (100 X factor score subtotal/maximum score subtotal)	41
2. Flooding	0	1	0	3
			Subscore (100 X factor score/3)	
3. Ground water migration				
Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
			Subtotals 46	114
			Subscore (100 X factor score subtotal/maximum score subtotal)	4
C. Highest pathway subscore.				
Enter the highest subscore value from A, B-1, B-2 or B-3 above.				
			Pathways Subscore	41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	54
Pathways	41
Total 163 divided by 3 =	54
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

54 x 1.0 = 54

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 5 - Lateral Safety Zone Spill Area

LOCATION Lateral Safety Zone Between Taxiway B and C

DATE OF OPERATION OR OCCURRENCE 1972

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	2	6	12	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6		18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	107	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 59

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

90 X 1.0 = 90

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	118

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) _____

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 41

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	59
Waste Characteristics	1
Pathways	41
Total 190 divided by 3 =	63

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

63 X 1.0 = 63

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 6 - Underground Storage Tank at Base Filling Station

LOCATION Base Filling Station

DATE OF OPERATION OR OCCURRENCE 1985

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

60 x 0.9 = 54

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

54 x 1.0 = 54

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points f... direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.				
			Subscore	0
B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.				
1. Surface water migration				
Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108
Subscore (100 X factor score subtotal/maximum score subtotal)				41
2. Flooding	0	1	0	3
Subscore (100 X factor score/3)				0
3. Ground water migration				
Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114
Subscore (100 X factor score subtotal/maximum score subtotal)				40
C. Highest pathway subscore.				
Enter the highest subscore value from A, B-1, B-2 or B-3 above.				
			Pathways Subscore	41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	54
Pathways	41
Total 163 divided by 3 =	54
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

54 X 1.0 = 54

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 9 - Salvage Yard, Facility No. 906

LOCATION Facility No. 906

DATE OF OPERATION OR OCCURRENCE

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	95	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 63

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

1.0 X 60 = 60

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

60 X 1.0 = 60

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.				
			Subscore	
B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.				
1. Surface water migration				
Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
			Subtotals 44	108
			Subscore (100 X factor score subtotal/maximum score subtotal)	41
2. Flooding	0	1	0	3
			Subscore (100 X factor score/3)	0
3. Ground water migration				
Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
			Subtotals 46	114
			Subscore (100 X factor score subtotal/maximum score subtotal)	40
C. Highest pathway subscore.				
Enter the highest subscore value from A, B-1, B-2 or B-3 above.				
			Pathways Subscore	41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	63
Waste Characteristics	60
Pathways	41
Total 164 divided by 3 =	55
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

55 x 1.0 = 55

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 10 - Location of JP-4 Fuel Line Rupture

LOCATION Behind Bldgs. 848 and 849

DATE OF OPERATION OR OCCURRENCE

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	2	6	12	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	117	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 65

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 70

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

70 X .9 = 63

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

63 X 1.0 = 63

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points f... direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore ___

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	65
Waste Characteristics	63
Pathways	41
Total 169 divided by 3 =	56

Gross Total S... r

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

56 x 1.0 = 56

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 12 -- Old Drum Storage Area

LOCATION East of Bldg. 873

DATE OF OPERATION OR OCCURRENCE 1979-1984

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 30

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

30 X 1.0 = 30

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

30 X 1.0 = 30

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	30
Pathways	41
Total 139 divided by 3 =	46
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

46 X 1.0 = 46

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 14 - KC - 135 Crash Site

LOCATION Aircraft Parking Apron Near Taxiway F

DATE OF OPERATION OR OCCURRENCE 1960

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	103	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 57

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

90 X 1.0 = 90

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points f... direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	57
Waste Characteristics	90
Pathways	41
Total 188 divided by 3 =	63

Gross Total S...r

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

63 x 1.0 = 63

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 15 - Fuel Dump Pit at Southwest End of Runway

LOCATION Between Two Main Runways, SW End

DATE OF OPERATION OR OCCURRENCE 1942 - 1955

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	2	6	12	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	97	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 54

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 70

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

70 X 0.9 = 63

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

63 X 1.0 = 63

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore ____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding | 0 | 1 | 0 | 3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 41

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors 54
Waste Characteristics 63
Pathways 41

Total 158 divided by 3 = 53 Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

53 X 1.0 = 53

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 16 - Fuel Dump Pit at Northwest End of Runway

LOCATION Between Two Main Runways, NE End

DATE OF OPERATION OR OCCURRENCE 1942 - 1955

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	2	6	12	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals		180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 54

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 70

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

70 X 0.9 = 63

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

63 X 1.0 = 63

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.				
			Subscore	
B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.				
1. Surface water migration				
Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108
Subscore (100 X factor score subtotal/maximum score subtotal)				41
2. Flooding	0	1	0	3
Subscore (100 X factor score/3)				0
3. Ground water migration				
Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114
Subscore (100 X factor score subtotal/maximum score subtotal)				4
C. Highest pathway subscore.				
Enter the highest subscore value from A, B-1, B-2 or B-3 above.				
			Pathways Subscore	41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	54
Waste Characteristics	63
Pathways	41
Total 158 divided by 3 =	53
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

53 x 1.0 = 53

NAME OF SITE Site No. 17 - Old Entomology Lab

LOCATION Adjacent to Bldg. 428

DATE OF OPERATION OR OCCURRENCE 1950 - 1980

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

60 X 1.0 = 60

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

60 X 1.0 = 60

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	68
Pathways	41
Total 169 divided by 3 =	56
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

56 X 1.0 = 56

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 19 - North Coal Pile

LOCATION Coal Pile Outside Heating Plant

DATE OF OPERATION OR OCCURRENCE 1942 - Present

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

0.50 X 90 = 45

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 8

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		
Net precipitation		6		
Surface erosion		8		
Surface permeability		6		
Rainfall intensity		8		
		Subtotals		

Subscore (100 X factor score subtotal/maximum score subtotal)

2. Flooding | | 1 | |

Subscore (100 X factor score/3)

3. Ground water migration

Depth to ground water		8		
Net precipitation		6		
Soil permeability		8		
Subsurface flows		8		
Direct access to ground water		8		
		Subtotals		

Subscore (100 X factor score subtotal/maximum score subtotal)

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 80

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors 68
Waste Characteristics 45
Pathways 80

Total 193 divided by 3 = 64
Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

64 x 1.0 = 64

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 20 - South Coal Pile

LOCATION Coal Pile Adjacent to Heating Plant on South Side of Tank Truck Road

DATE OF OPERATION OR OCCURRENCE 1942 - Present

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals		180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

0.50 X 90 = 45

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 80

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		
Net precipitation		6		
Surface erosion		8		
Surface permeability		6		
Rainfall intensity		8		
		Subtotals	____	____

Subscore (100 X factor score subtotal/maximum score subtotal) ____

2. Flooding | | 1 | | |

Subscore (100 X factor score/3) ____

3. Ground water migration

Depth to ground water		8		
Net precipitation		6		
Soil permeability		8		
Subsurface flows		8		
Direct access to ground water		8		
		Subtotals	____	____

Subscore (100 X factor score subtotal/maximum score subtotal) ____

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 80

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	45
Pathways	80
Total 193 divided by 3 =	64
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

64 X 1.0 = 64

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 21 - Leaking Drum and Oil Change Area at Water Treatment Plant

LOCATION In back of Water Treatment Plant

DATE OF OPERATION OR OCCURRENCE

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	130

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

60 X 0.9 = 54

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

54 X 1.0 = 54

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points fo... direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 2

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	54
Pathways	41
Total 163 divided by 3 =	54
	Gross Total Sc...

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

54 X 1.0 = 54

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 22 - Heating Plant Lube Oil Drum Storage Area

LOCATION Behind the Base Heating Plant

DATE OF OPERATION OR OCCURRENCE Uncertain - Present

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

1. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

50 X 0.9 = 45

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

45 X 1.0 = 45

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding | 0 | 1 | 0 | 3 |

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	45
Pathways	41
Total 154 divided by 3 =	51

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

51 X 1.0 = 51

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 23 - Fire Training Area

LOCATION East of Base Runway, Adjacent to Structure 687

DATE OF OPERATION OR OCCURRENCE 1950

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	103	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 57

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 x 0.9 = 90

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

90 x 1.0 = 90

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	57
Waste Characteristics	90
Pathways	41
Total 188 divided by 3 =	63

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

63 X 1.0 = 63

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 24 - Sanitary Sewage Treatment Plant Sludge Beds

LOCATION Outside Inactive Sewage Treatment Plant

DATE OF OPERATION OR OCCURRENCE 1950 - 1980

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	103	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 57

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 70

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

70 X 1.0 = 70

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

70 X .75 = 53

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding

	0	1	0	3

Subscore (100 X factor score/3) _____

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	57
Waste Characteristics	53
Pathways	41
Total 151 divided by 3 =	50
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

50 x 1.0 = 50

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 25 - Storm Drainage Ditch System

LOCATION Various Locations Throughout Rickenbacker ANGB

DATE OF OPERATION OR OCCURRENCE 1950 - Present

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	3	10	30	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	123	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 68

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 100

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

100 X 1.0 = 100

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

100 X 1.0 = 100

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points f direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	68
Waste Characteristics	100
Pathways	41
Total 209 divided by 3 =	70

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

70 X 1.0 = 7

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 26 - Electrical Transformer Storage Yard

LOCATION South of Vause Rd, Outside Settling Pond Fence

DATE OF OPERATION OR OCCURRENCE 1950 - 1975 (estimate)

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	2	10	20	30
C. Land use/zoning within 1 mile radius	3	3	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	113	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 63

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) S
3. Hazard rating (H - high, M - medium, L - low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points fo... direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water	3	8	24	24
Net precipitation	1	6	6	18
Surface erosion	1	8	8	24
Surface permeability	1	6	6	18
Rainfall intensity	0	8	0	24
		Subtotals	44	108

Subscore (100 X factor score subtotal/maximum score subtotal) 41

2. Flooding	0	1	0	3

Subscore (100 X factor score/3) 0

3. Ground water migration

Depth to ground water	2	8	16	24
Net precipitation	1	6	6	18
Soil permeability	2	8	16	24
Subsurface flows	1	8	8	24
Direct access to ground water	0	8	0	24
		Subtotals	46	114

Subscore (100 X factor score subtotal/maximum score subtotal) 40

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 41

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	63
Waste Characteristics	40
Pathways	41
Total 144 divided by 3 =	48

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

48 x 1.0 = 48

HAZARDOUS ASSESSMENT RATING FORM

NAME OF SITE Site No. 27 - Drainage Ditch Near Landfill

LOCATION Adjacent to Landfill

DATE OF OPERATION OR OCCURRENCE 1982

OWNER/OPERATOR Ohio Air National Guard

COMMENTS/DESCRIPTION

SITE RATED BY Hazardous Materials Technical Center

I. RECEPTORS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score
A. Population within 1,000 feet of site	3	4	12	12
B. Distance to nearest well	1	10	10	30
C. Land use/zoning within 1 mile radius	3	1	9	9
D. Distance to installation boundary	3	6	18	18
E. Critical environments within 1 mile radius of site	0	10	0	30
F. Water quality of nearest surface water body	3	6	18	18
G. Ground water use of uppermost aquifer	2	9	18	27
H. Population served by surface water supply within 3 miles downstream of site	0	6	0	18
I. Population served by ground-water supply within 3 miles of site	3	6	18	18
		Subtotals	103	180

Receptors subscore (100 X factor score subtotal/maximum score subtotal) 57

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C - confirmed, S - suspected) C
3. Hazard rating (H - high, M - medium, L - low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

50 X 0.8 = 40

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

40 X 1.0 = 40

III. PATHWAYS

Rating Factor	Factor Rating (0-3)	Multiplier	Factor Score	Maximum Possible Score

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 8

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

Distance to nearest surface water		8		
Net precipitation		6		
Surface erosion		8		
Surface permeability		6		
Rainfall intensity		8		
		Subtotals		

Subscore (100 X factor score subtotal/maximum score subtotal)

2. Flooding | | 1 | | |

Subscore (100 X factor score/3)

3. Ground water migration

Depth to ground water		8		
Net precipitation		6		
Soil permeability		8		
Subsurface flows		8		
Direct access to ground water		8		
		Subtotals		

Subscore (100 X factor score subtotal/maximum score subtotal)

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore 80

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors	57
Waste Characteristics	40
Pathways	80
Total 177 divided by 3 =	59
	Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

59 X 1.0 = 59

Appendix F

National Pollutant Discharge Elimination System Permit Reports

OHIO AIR NATIONAL GUARD
DETACHMENT 1, HEADQUARTERS OHIO AIR NATIONAL GUARD
RICKENBACKER AIR NATIONAL GUARD BASE, OHIO 43217-5001

REPLY TO
ATTN OF: DEE

4 February 1986

SUBJECT: NPDES Permit Reports

TO: Permit and Compliance Program Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43216-1049

The attached NPDES permit reports for October 1985 are forwarded for your review.

SIGNED

ALAN C. FRIEDSTROM
Chief of Engineering

2 Atchs
1. EPA-4500, Permit 007838-0001, Oct 85
2. EPA-45000, Permit 007838-0002, Oct 85

[illegible]HLY REPORT FORM

Ohio EPA

REPORTED [illegible]

ADDRESS, CITY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE OF	PRINTING DATE	APPLICATION NO
U.S. DEPT. [illegible] THE AIR FORCE OHIO AIR NATIONAL GUARD [illegible]CIST COMBAT SUPPORT [illegible] RICKENBACKER AIR FORCE [illegible] LOCKBOURNE [illegible]	[illegible]	OCT 1985	1 1	[illegible]	[illegible]

SAMPLING STATION DESCRIPTION

001 DISCHARGE [illegible] BIG WALNUT

NOTE: THIS FORM MUST BE TYPED

N(1) - ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE

N(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

(1)	2	2	2	2	2	2				
(2)	2	2	2	2	2	2				
	[illegible]	[illegible] TOTAL [illegible]	[illegible] TOTAL [illegible]	CH[illegible] [illegible]	LEA[illegible] [illegible]	[illegible]L [illegible]				
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
1										
02										
03										
4										
05										
06										
7										
8										
09										
10	7.5	< 5	< 1.0	< 30	< 2	< 10				
1										
12										
13										
4										
5										
16										
7										
8										
19										
20										
1										
22										
23										
4										
5										
26										
7										
8										
29										
30										
1	7.1	< 5	2.31	< 30	< 2	< 10				
TOTAL										
AVG.	7.3	< 5	1.66	< 30	< 2	< 10				
MAX.	7.1	< 5	2.31	< 30	< 2	< 10				
MIN.	8.5	< 5	< 1.0	< 30	< 2	< 10				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON MY [illegible] THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND CO[illegible] AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
4 Feb 86	ALAN C. FRIEDSTROM SIGNED	Chief of Engineering

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

F-2

REPORTER COPY

LY REPORT FORM

REPORTED

Ohio EPA

ADDRESS, CITY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE OF	PRINTING DATE	APPLICATION
U.S. DEPT. OF THE AIR FORCE OHIO AIR NATIONAL GUARD 301ST COMBAT SUPPORT GROUP RICKENBACKER AIR FORCE BASE 002 DISCHARGE PRIOR WALNUT CRK COLUMBUS 43217 FRANKLIN	41000000002	OCT 1985	1	05/29/86	

SAMPLING STATION DESCRIPTION

NOTE: THIS FORM MUST BE

IN(1) - ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE 3 FOR GRAB SAMPLE
IN(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AND CODE NO AT RIGHT										
(1)	2	2	2	2	2					
(2)	2	2	2	2	2					
	pH	COLIFORM FECAL MF M/100ML	FECAL STREP TOTAL MF M/100ML	OIL & GREASE HEXANE EXTR MG/L	PHENOLS TOTAL MG/L	CONDUCTIVITY FIELD UMHOS/CM				
DAY	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING COD
01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
02										
03										
04										
05										
06										
07										
08										
09										
10	8.1	10	1.0	0.2	10	N/A				
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31	7.7	5	1.57	0.2	10					
TOTAL										
AVG.	7.8	7.5	1.29		10	N/A				
MAX.	7.7	10	1.57	0.2	10	N/A				
MIN.	8.1	5	1.0	0.2	10	N/A				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON MY [illegible] THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND CO[illegible] AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
4 Feb 86	ALAN C. FRIEDSTROM SIGNED	Chief of Engineering

OEPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 85-10-10

Date Reported 86-01-29

Station Lockbourne (EB1)

Laboratory Number 22918

Approved By: SWP SC, [ ][ ][ ][ ][ ][ ]

Sample Type: Grab [X] Composite [ ]

Sample Type: Monthly [ ] Compliance [ ] Litigation [ ]
WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]

Sample Collected By SAIC SE ALVAREZ

Report Analysis To SAIC SE ALVAREZ

CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Date & Time of Sample		Y	Y	M	M	D	D	H	H	M	M
	Begin	8	5	1	0	1	0	0	8	4	0
	End										

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.5			
[X] Temperature, Water, °C	P10,	14.4			
[ ] Gage Height, ft.	P65,				
[ ] Temp [illegible]					
[ ] [illegible]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[ ] Arsenic, Total As, ug/l	P1002,				
[ ] Barium, Total Ba, ug/l	P1007,				
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	1-3	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	1-27	SBW	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	42	1-7	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[ ] Selenium, Total Se, ug/l	P1147,				
[ ] Silver, Total Ag, ug/l	P1077,				
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Zinc, Total, ug/l	P1092,				
[ ] [illegible]					
[ ] [illegible]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,				
[ ] Nitrate-Nitrite, as N, mg/l	P620,				
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	<1.0	10-21	AH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	10-21	MF	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	10-11	BM	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF #/100 ml	P31616,				
[ ] Fecal Strep, MF #/100 ml	P31679,				
[ ]					

PRESERVATIVES

[ ] NaOH [ ] $K_2Cr_2O_7$

[ ] H_2SO_4 [ ] $CuSO_4$ H_3PO_4

[ ] HNO_3 [ ] Other

Comments: [illegible]

DISTRIBUTION: WHITE-LAB GREEN-PERM CANARY-STC PINK-DISTRI GOLDENROD

OEPA 470 [illegible]

OEPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laborat

Received 10 Oct 85

Laboratory Number 22919

Date Reported 86-01-29

Approved By: SWP SC, ☐☐☐☐☐☐

Station Sewage Treatment Plant (STP) Sample Type: Grab ☒, Composite ☐

Sample Type Monthly ☐ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUL ST AUWARE

Date & Time of Sample

	Y	Y	M	M	D	D	H	H	M	M
Begin	8	5	1	0	1	0	0	8	0	0
End										

Report Analysis To SAUL ST AUWARE

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	8.1			
☒ Temperature, Water, °C	P10,	14.4			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1-3	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	1-27	SBW	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☒ Iron, Total Fe, ug/l	P1045,	510	1-14	MA	
☐ Lead, Total Pb, ug/l	P1051,				
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$, mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	<1.0	10-1	KH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	10-21	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	10	10-11	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: SAUL ST AUWARE
RET 1, OH ANG/SG
Reeker backer ARGO Ohio
43217-5000
(614) 492-3137

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4
☒ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB
GREEN-PERMIT
CANARY-STO
PINK-DISTRIC
GOLDENROD

OEPA 4700 • analyzed at lab

F-5

EPA **DIVISION OF WASTEWATER POLLUTION CONTROL** Report – Chemistry Laboratory

Received 31 Oct 85
Reported 86-01-30
Station LOCKBOURNE 1
Sample Type Monthly ☒ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐
Sample Collected By SAUL ST ALVAREZ
Report Analysis To SAUL ST ALVAREZ
CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☒ CDO ☐ WQPA ☐

Laboratory Number 23107
Approved By: SWP SC. ☐☐☐☐☐☐
Sample Type: Grab ☒ Composite ☐
Date & Time of Sample: Begin Y Y M M D D = 8 5 1 0 3 1; H H M M = 1 0 0 2
End ☐☐☐☐☐☐ ☐☐☐☐
Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.3			
☒ Temperature, Water, °C	P10,	10			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1-6	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	1-27	SBW	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-15	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	2.31	11-19	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	11-6	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	11-4	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF #/100 ml	P31679,				
☐					

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4
☐ HNO_3 ☐ Other

Comments: SAUL ST ALVAREZ
DEC BOX
RICKENBACKER ANGB
Columbus Ohio

EPA 4700 • CLEAN Lab - Sizable ... Quality Soul

DISTRIBUTION: WHITE-LAB GREEN-PERI CANARY-STO. PINK-DISTRICT GOLDENROD-DISTRICT

[redacted]A DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

[redacted]eived 31Oct85
[redacted]eported 86-01-30
Laboratory Number 23108
Approved By: SWP SC, [ ][ ][ ][ ][ ][ ]
Station Sewage treatment Plant 2
Sample Type: Grab [X] Composite [ ]
Sample Type Monthly [X] Compliance [ ] Litigation [ ]
WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]
Sample Collected By SAUL ST ALVAREZ
Date & Time of Sample: Begin Y Y M M D D H H M M = 8 5 1 0 3 1 2 4 3 2
End [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ]
Report Analysis To SAUL ST ALVAREZ
Frequency & Duration of Composite Sample
CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.7			
[X] Temperature, Water, °C	P10,	15			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[ ] Arsenic, Total As, ug/l	P1002,				
[ ] Barium, Total Ba, ug/l	P1007,				
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	1-6	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	1-27	SBW	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	1-15	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[ ] Selenium, Total Se, ug/l	P1147,				
[ ] Silver, Total Ag, ug/l	P1077,				
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCO_3$ mg/l	P900,				
[ ] Nitrate-Nitrite, as N, mg/l	P620,				
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	1.57	11-19	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	10	11 6	MA	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	11-4	BN	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF, #/100 ml	P31616,				
[ ] Fecal Strep, MF # / 100 ml	P31679,				
[ ]					

Comments: SAUL ST ALVAREZ
Dept/SGX
Rickenbacker ANGB
Columbus 43217-5001
(614) 492-3132 Ohio

PRESERVATIVES
[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P
[ ] H_2SO_4 [ ] $CuSO_4$-H_3PO_4
[ ] HNO_3 [ ] Other

DISTRIBUTION: WHITE-/ GREEN CANARY PINK-DIST... GOLDENROD-DISTRICT

OEPA 4700

OHIO AIR NATIONAL GUARD
DETACHMENT 1, HEADQUARTERS OHIO AIR NATIONAL GUARD
RICKENBACKER AIR NATIONAL GUARD BASE, OHIO 43217-5001

REPLY TO ATTN OF: DEE

24 February 1986

SUBJECT: NPDES Permit Reports

TO: Permit and Compliance Program Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43216-1049

The attached NPDES permit reports for November 1985 are forwarded for your review.

SIGNED

ALAN C. FRIEDSTROM, PE
Chief of Engineering

2 Atchs
1. EPA-4500, Permit 007838-0001, Nov 85
1. EPA-4500, Permit 007838-0002, Nov 85

REPORT FORM

REPORTED

ADDRESS, CITY, COUNTY ZIP | STATION CODE | DATE (MONTH, YEAR) | PAGE | PRINTING DATE | APPLICATION NO

[illegible] | [illegible] | [illegible] | [illegible] OF [illegible]

SAMPLING STATION DESCRIPTION

NOTE: THIS FORM MUST BE TYPE

IN:1 ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE 3 FOR GRAB SAMPLE
IN:2 ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater lab

ANALYST

ENTER ANALYSES PERFORMED (AI) NO A

(1)	2	2	2	2	2	2				
(2)	2	2	2	2	2	2				
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
DAY	[illegible]	[illegible]	00	01[illegible]	[illegible]	32730				
1										
02										
03										
4										
5										
06										
7										
8	7.3	< 5	1.88	< 30	< 2	13				
09										
10										
1										
2										
13										
4										
5										
16										
17										
3										
19										
20										
1										
2										
23										
4										
5										
26	7.3	< 5	1.06	< 30	< 2	Interference				
27										
3										
9										
30										
1										
TOTAL										
AVG.	7.3	< 5	1.42	< 30	< 2	13				
MAX.	7.3	< 5	1.78	< 30	< 2	13				
MIN.	7.3	< 5	1.06	< 30	< 2	13				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON MY INQUIRY C THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
24 Feb 86	ALAN C. FRIEDSTROM	Chief of Engineering

F-9

[illegible] Precaution [illegible]

REPORTER COPY

REPORT FORM

REPORTED

OhioEPA

CITY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE	PRINTING DATE	APPLICATION
DEPT. OF THE AIR FORCE AIR NATIONAL GUARD ST COMBAT SUPPORT GROUP CKENBACKER AIR FORCE BASE OCKBOURNE 43217 FRANKLIN	[redacted]	[redacted]	1 OF 1	[redacted]	[redacted]

SAMPLING STATION DESCRIPTION: [redacted] DISCHARGE FROM WALNUT CRK

NOTE: THIS FORM MUST T

IN(1) - ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE
IN(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AND CODE NO. AT RIGHT

(1)	2	2	2	2	2	2				
(2)	2	2	2	2	2	2				
	[illegible] D.O.	RESIDU T. [illegible] MG/L	OXY TOTAL MG/L	CAD CD,TOT UG/L	PHEN L 4AAP TOTICY	CYANI FLA MG/				
DAY	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING C
01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
02										
03	[illegible]			[illegible]	[illegible]					
04										
05	[illegible]	[illegible]		[illegible]	[illegible]					
06										
07	[illegible]				[illegible]	[illegible]		[illegible]		
08	7.1	< 5	1.5[illegible]	< 0.2	10	N/A				
09										
10										
11										
12										
13										
14										
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16										
17										
18										
19										
20										
21				[illegible]	[illegible]					
22										
23										
24										
25		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	7.7	7	7.60	0.2	< 10	N/A				
27		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28										
29		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30										
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL										
AVG.	7.4	6	4.59	0.2	10	N/A				
MAX.	7.1	7	7.60	0.2	10	N/A				
MIN.	7.7	< 5	1.58	< 0.2	< 10	N/A				

DDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

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F-1

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
24 Feb 86	ALAN C. FRIEDSTROM	Chief of Engineerin

[redacted]EPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

23155

[redacted]eived 08 NOV 85

Reported 86-02-12

Laboratory Number

Approved By: SWP SC, ☐☐☐☐☐☐

[redacted]ation: Lock Haven

Sample Type: Grab ☐ Composite ☐

[redacted]ample Type Monthly ☐ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By

Date & Time of Sample: Y Y M M D D / H H M M

Begin 8 5 1 1 0 8 / 1 0 4 5

End ☐☐☐☐☐☐ / ☐☐☐☐

[redacted]eport Analysis To SAME ST ALTHER

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.3			
☒ Temperature, Water, °C	P10,	6.6			
☐ Gage Height, ft.	P65,				
☐ [redacted]					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	0.6	1-19	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	2-7	SBW	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss. Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-17	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐ [redacted]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	1.78	11-19	RH	
☒ pH, SU	P403,	6.82	11-8	RH	
☒ Phenolics, ug/l	P32730,	13	11-18	MAT	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt. mg/l	P530,	<5	11-14	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF #/100 ml	P31679,				
☐					

Comments: ATTN: SAME ST ALTHER [redacted] OSWEGO [redacted] ANDOVER, Ohio

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☒ H_2SO_4 ☒ $CuSO_4$-H_3PO_4

☒ HNO_3 ☐ Other

N/P

DISTRIBUTION: WHITE-LAB
GREEN-PERMIT
CANARY-STOR
PINK-DISTRICT
GOLDENROD-DISTRICT

EPA 4700 [redacted] 4327-502

F-11

OEPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 08 NOV 85

Reported 30 01-31

Laboratory Number 23154

Approved By: SLP SC, ☐☐☐☐☐☐

Location Sewage Treatment Plant

Sample Type: Grab ☐ Composite ☐

Sample Type: Monthly ☐ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By

Date & Time of Sample: Begin Y Y M M D D H H M M = 85 11 08 10 07; End

Report Analysis To SAUL ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.1			
☒ Temperature, Water, °C	P10,	7.7			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1-19	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	1-27	SBW	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-17	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$, mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$, mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$, mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	1.58	11-19	RH	
☒ pH, SU	P403,	7.50	11-8	RH	
☒ Phenolics, ug/l	P32730,	10	11-18	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	11-14	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: SAUL ST ALVAREZ Oct 1/SGK Rickenbacker ANGB, Ohio 43217-5001

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☒ H_2SO_4 ☒ $CuSO_4$-H_3PO_4

☒ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB, GREEN-PERMIT, CANARY-STORET, PINK-DISTRICT, GOLDENROD-DISTRICT

OEPA 4700

F-12

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 26 NOV 85

Reported 86-02-18

Station LOCKBOURNE - (LB)

Laboratory Number 23229

Approved By: SWP SC, ☐☐☐☐☐☐

Sample Type: Grab ☒ Composite ☐

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By RHEA COURSON

Report Analysis To SAUL ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Date & Time of Sample

	Y	Y	M	M	D	D	H	H	M	M
Begin	8	5	1	1	2	6	0	9	5	2
End	8	5	1	1	2	6				

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.3			
☒ Temperature, Water, °C	P10,	9.4° C			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	0.4	1-19	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
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☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-17	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
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☐ Potassium, Total K, mg/l	P937,				
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☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

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☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	1.06	12-3	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	INTERFERENCE			
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	11-27	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: ATTN: SAUL ALVAREZ
ADETI CHANG ESQX
RANGE OHIO
43217-5001
492-3182

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4
☐ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB, GREEN-PERMIT, CANARY-STOR, PINK-DISTRICT, GOLDENROD-DISTRICT

OEPA 4700

[redacted]PA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratc

Laboratory Number 23230

Received 26 NOV 85

Reported 86-02-12

Approved By: SWP SC, [ ][ ][ ][ ][ ][ ].

Location SEWAGE TREATMENT PLANT-ST. 2 Sample Type: Grab [X] Composite [ ]

Sample Type Monthly [X] Compliance [ ] Litigation [ ] WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]

Sample Collected By KAREA COURSON/

Date & Time of Sample: Y Y M M D D H H M

Begin 8 5 1 1 2 6 0 9 2 9

End 8 5 1 1 2 6 [ ][ ][ ][ ]

Report Analysis To SAUL ALVAREZ

CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Frequency & Duration of Composite Sample _____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.7			
[X] Temperature, Water, °C	P10,	11.1°C			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[ ] Arsenic, Total As, ug/l	P1002,				
[ ] Barium, Total Ba, ug/l	P1007,				
[X] Cadmium, Total Cd, ug/l	P1027,	0.2	1-19	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	2-7	SBW	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	2	1-11	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[ ] Selenium, Total Se, ug/l	P1147,				
[ ] Silver, Total Ag, ug/l	P1077,				
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,				
[ ] Nitrate-Nitrite, as N, mg/l	P620,				
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	7.6 c	12-3	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	12-6	MA	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	7	11-27	BM	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF, #/100 ml	P31616,				
[ ] Fecal Strep, MF # / 100 ml	P31679,				
[ ]					

Comments: ATTN: SAUL ALLAREZ
DET. DHANG/SCK
RANGE, CH. 43217-5001
492-3132

PRESERVATIVES

[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P
[X] H_2SO_4 [X] $CuSO_4$-H_3PO_4
[X] HNO_3 [ ] Other N/P

DISTRIBUTION: WHITE-LAB GREEN-PER CANARY-STC. PINK-DISTRICT GOLDENROD-DISTRICT

F-14

OEPA 4700

OHIO AIR NATIONAL GUARD
DETACHMENT 1, HEADQUARTERS OHIO AIR NATIONAL GUARD
RICKENBACKER AIR NATIONAL GUARD BASE, OHIO 43217-5001

REPLY TO
ATTN OF DEE

2 April 1986

SUBJECT: NPDES Permit Reports

TO: Technical Records
Ohio EPA
P.O. Box 1049
Columbus, OH 43216-1049

The attached NPDES permit reports for December 1985, January and February 1986, are forwarded for your review. Summary of deficiencies and comments are as follows:

a. Permits OH 0007838-0001 and 0002, December 1985, show no PH levels. This was due to our Industrial Hygienist training new personnel and forgetting to include this in the sample.

b. Permits OH 0007838-0001 and 0002, February 1986, show high levels of suspended solids. This was due to high amount of rainfall in the three preceeding days before samples were taken.

c. Permit OH 0007838-0002, February 1986, shows only one sample was taken for Cadmium. Our Industrial Hygienist did not request the test on the first sample.

Alan C. Friedstrom, P.E.

ALAN C. FRIEDSTROM, PE
Chief of Engineering

2 Atchs
1. EPA-4500, Permit 0007838-0001, Dec, Jan, Feb
2. EPA-4500, Permit 0007838-0002, Dec, Jan, Feb

REPORTER COPY

EPORT FORM

REPORTED

OhioEPA

CITY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE	PRINTING DATE	APPLICATION NO
DEPT. OF THE AIR FORCE	4[illegible]0030001	DEC 1985	OF 1	[illegible]	[illegible]
WPAFB AIR NATIONAL GUARD					
3615T C-141 SUPPORT GROUP	SAMPLING STATION DESCRIPTION				
WRIGHT-PATTERSON AIR FORCE BASE	OUTFALL PRIOR TO WALNUT				
GREENE/CLARK 45433 FRANKLIN					

NOTE: THIS FORM MUST BE TYPE

IN(1) - ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE 3 FOR GRAB SAMPLE

IN(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST

ENTER ANALYSIS PARAMETER CODE AND UNIT										
(1)	2	2	2	3	2	2				
(2)	2	2	2	2	2	2				
	[illegible]	[illegible] TOTAL [illegible]	[illegible] TOTAL [illegible]	[illegible]	[illegible]	[illegible]				
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
DT	[illegible]	[illegible]	02550	[illegible]	0[illegible]2 1	12150				
01										
02										
3										
4										
05										
06										
7										
08										
09										
0										
1										
12										
3										
4										
15										
16	Did not Take	< 5	2.04	< 30	< 2	< 10				
7	Take									
8										
19										
0										
1										
22										
23										
4										
25										
26										
7										
8										
29										
0										
1	Did not Take	Not Rptd	< 1.0	< 30	< 2	< 10				
TOTAL										
AVG.	5	< 5	1.52	< 30	< 2	< 10				
MAX.		< 5	2.04	< 30	< 2	< 10				
MIN.		< 5	< 1.0	< 30	< 2	< 10				

ADDITIONAL REMARKS (ALL REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONME

IIRY C
I AI

F-16

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2 Apr 86	[signature]	Chief of Engineering

REPORTER COPY

OhioEPA

...PORT FORM

REPORTED

...TY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE OF	PRINTING DATE	APPLICATION NO.
DEPT. OF THE AIR FORCE ... AIR NATIONAL GUARD ... COMBAT SUPPORT GROUP RICKENBACKER AIR FORCE BASE LOCKBOURNE 43217 FRANKLIN	4170000001?	DEC 1985	1 1	05/25/85	OH000??3

SAMPLING STATION DESCRIPTION

002 DISCHARGE PRIOR WALNUT CRK

NOTE: THIS FORM MUST BE ...

IN(1) - ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE

IN(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AND CODE NO. AT RIGHT

DAY	[illegible]	RESIDUE ...	... TOTAL ...	CAD ...	...	COND. FLOW ...				
(1)	2	2	2	2	2	2				
(2)	2	2	2	2	2	2				
REPORTING CODE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
01										
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06										
07										
08										
09										
10										
11										
12										
13										
14										
15										
16		< 5	3.13	< 0.2	< 10	N/A				
17	Did not Take									
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31	Did not Take	Not Rptd	< [illegible]	< 0.2	10	N/A				
TOTAL										
AVG.		< 5	2.07	< 0.2	10	N/A				
MAX.		< 5	3.13	< 0.2	10	N/A				
MIN.		< 5	< 1.0	< 0.2	< 10	N/A				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON ... THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND ... AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONME...

F-17

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2 Apr 86	[signature]	Chief of Engineerin.

REPORTER COPY

...ORT FORM

REPORTED

OhioEPA

...COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE OF	PRINTING DATE	APPLICATION NO
...OF THE AIR FORCE	41000000001	JAN 1991	1	05/29/86	OH0071183
...AIR NATIONAL GUARD					
...T COMBAT SUPPORT GROUP	SAMPLING STATION DESCRIPTION				
...RICKENBACKER AIR FORCE BASE	001 DISCHARGE FROM RED VALLEY				
...COLUMBUS	43217 FRANKLIN				

NOTE: THIS FORM MUST BE TYPED

ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE 3 FOR GRAB SAMPLE

ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AT RIG... AND CO...

DAY	(1)	(2)								
	2	2	2	2	2	2				
	2	2	2	2	2	2				
	[illegible]	[illegible]	TOTAL [illegible]	[illegible]	[illegible]	[illegible]				
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
01										
02										
03										
04										
05										
06										
07										
08										
09	7.2	< 5	5.37	< 30	< 2	< 10				
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	7.5	< 5	< 1.0	< 30	< 2	< 10				
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL										
AVG.	7.35	< 5	3.19	< 30	< 2	< 10				
MAX.	7.2	< 5	5.38	< 30	< 2	< 10				
MIN.	7.5	< 5	< 1.0	< 30	< 2	< 10				

ADDITIONAL REMARKS (ALL REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON ...IRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND ... I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONME...

F-18

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2Apr 86	[signature]	Chief of Engineering

REPORTER COPY

...ORT FORM

OhioEPA

REPORTED

...COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE	PRINTING DATE	APPLICATION NO
...PT. OF TH AIR FORCE AIR NATIONAL GUARD ...ST COMBAT SUPPORT GROUP ...CKENBACKER AIR FORCE BASE ...COLUMBUS 43217 FRANKLIN	41000[illegible]	[illegible]	1 OF 1	03/25/[illegible]	[illegible]

SAMPLING STATION DESCRIPTION

00[illegible] DISCHARGE [illegible] WALNUT CRK

NOTE: THIS FORM MUST BE ...

IN(1) - ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE IN(2) - ENTER FREQUENCY OF SAMPLING	REPORTING LAB Ohio EPA Wastewater Lab	ANALYST

ENTER ANALYSES PERFORMED AND CODE NO AT RIGHT										
(1)	2	2	2	2	2	2				
(2)	2	2	2	2	2	2				
	[illegible]	[illegible] T[illegible]	[illegible] TOTAL [illegible]	CA[illegible]	[illegible]	[illegible]				
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
DAY	[illegible]	[illegible]	[illegible]	012[illegible]7	[illegible]	[illegible]				
01										
02										
03										
04										
05										
06										
07										
08										
09	8.0	<5	<1.0	<0.2	<10	N/A				
10										
11										
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15										
16										
17										
18										
19										
20										
21										
22										
23	7.8	<5	<1.0	<0.2	<10	N/A				
24										
25										
26										
27										
28										
29										
30										
31										
TOTAL										
AVG.	7.9	<5	<1.0	<0.2	<10	N/A				
MAX.	7.8	<5	<1.0	<0.2	<10	N/A				
MIN.	8.0	<5	<1.0	<0.2	<10	N/A				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON ... THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND ... AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2 Apr 86	[signature]	Chief of Engineering

F-19

[redacted] FORM

[redacted] ZIP | STATION CODE | DATE (MONTH YEAR) | PAGE OF | PRINTING DATE | APPLICATION NO

[redacted] OF THE AIR FORCE
[redacted] NATIONAL GUARD
[redacted] BAT SUPPORT GROUP
[redacted] BACKER AIR FORCE BASE
[redacted] CURRE

SAMPLING STATION DESCRIPTION

001 DISCHARGE INTO BIG WALNUT
43217 FACILITY

NOTE: THIS FORM MUST BE TYPE

ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE
ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST

ALTSE AND CODE NO. AI NU

	(1)	2	2	2	2	2	2				
	(2)	2	2	2	2	2	2				
		[redacted] S.U.	REDUCED T. N/L MG/L	CHL TOTAL MG/L	CHROM CR,TOT UG/L	LEAD PB,TOT UG/L	MERCURY HAAT TOTAL/				
		REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CO
DAY		[redacted]	2.70	[redacted]	[redacted]	[redacted]	[redacted]				
01		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
02											
03		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
04		7.4	13	<1.0	<30	3	<10				
05		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
06											
07		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
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21											
22											
23											
24											
25											
26											
27		7.5	7	3.31	<30	<2	<10				
28											
29		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
30											
31		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			
TOTAL											
AVG.		7.45	10	2.16	<30	2.5	<10				
MAX.		7.4	13	3.31	<30	3	<10				
MIN.		7.5	7	<1.0	<30	<2	<10				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AI AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONM.

F-20 JIR E

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2 Apr 86	[redacted]	Chief of Engineering

[redacted]

[redacted] FORM)

REPORTED /

COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE OF	PRINTING DATE	APPLICATION NO

[redacted] OF THE AIR FORCE
NATIONAL GUARD
COMBAT SUPPORT GROUP
SAMPLING STATION DESCRIPTION
ENBACKER AIR FORCE BASE 002 DISCHARGE PRIOR WALNUT CRK
CKEBURN 43217 FRANKLIN

NOTE: THIS FORM MUST BE TYPE

ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE
N(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AND CODE NO. AT RIGHT

	(1)	2	2	2	2	2	2				
	(2)	2	2	2	2	2	2				
		[redacted] S.U.	NITROGEN T. N-L MG/L	C.O TOTAL MG/L	CD CD,TOT UG/L	PHENOL 4AAP TOT/R/	CONDUCTI FIELD MGD				
DAY		REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
01		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
02											
03		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
04		7.5	174	<1.0		<10	N/A				
05											
06											
07											
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23											
24											
25											
26											
27		7.9	<5	3.09	<0.2	<10	N/A				
28											
29											
30											
31											
TOTAL											
AVG.		7.7	39.5	2.05	<0.2	<10	N/A				
MAX.		7.5	174	3.09	<0.2	<10	N/A				
MIN.		7.9	<5	<1.0	<0.2	<10	N/A				

ADDITIONAL REMARKS (ALL REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BA THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURA AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISO

F-21 INQ LE

DATE REPORT COMPLETED	SIGNATURE OF REPORTER	TITLE OF REPORTER
2 Apr 96	[redacted]	Chief of Engineering

[redacted] HNO3 Other

PINK-DISTRICT
GOLDENROD-DISTRIC

23263

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Date Received: 85-12-16

Date Reported: 86-03-12

Station: Lockbourne (LB-1)

Sample Type: Monthly [X] Compliance [ ] Litigation [ ] WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]

Sample Collected By: SAUL ST ALVAREZ

Report Analysis To: SAUL ST ALVAREZ

CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Laboratory Number: 23263

Approved By: SWP SC, [ ] [ ] [ ] [ ] [ ] [ ]

Sample Type: Grab [ ] Composite [ ]

Date & Time of Sample (Y Y M M D D / H H M M): Begin 8 5 1 2 1 6 / 1 0 2 0; End

Frequency & Duration of Composite Sample ____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,				
[ ] Temperature, Water, °C	P10,	3.33°c			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[ ] Arsenic, Total As, ug/l	P1002,				
[ ] Barium, Total Ba, ug/l	P1007,				
[X] Cadmium, Total Cd, ug/l	P1027,	0.8	1-19	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3 6	AL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss. Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	1-17	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[ ] Selenium, Total Se, ug/l	P1147,				
[ ] Silver, Total Ag, ug/l	P1077,				
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,				
[ ] Nitrate-Nitrite, as N, mg/l	P620,				
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	2.04	12-28	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	12-18	MA	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	12-17	BN	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF #/100 ml	P31616,				
[ ] Fecal Strep, MF #/100 ml	P31679,				
[ ]					

Comments: ATTN: SAUL ST ALVAREZ
Det. 1/56X
Rickenbacker ANGB
Columbus Ohio
(614) 492-3622

PRESERVATIVES
[X] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P
[X] H_2SO_4 [X] $CuSO_4$, H_3PO_4
[X] HNO_3 [ ] Other

DISTRIBUTION: WHITE-LAB
GREEN-PERM
CANARY-STORE
PINK-DISTRICT
GOLDENROD-DISTRICT

EPA 4700

DIVISION OF WASTEWATER POLLUTION CONTROL — Report – Chemistry Laborat

...eived: 85-12-16
...eported: INDEXED 86-03-12
...ation: Sewage Treatment Plant (STP-2)

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By: Saul St Alvarez

Report Analysis To: Saul St Alvarez

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Laboratory Number: 23264

Approved By: SWP SC, ☐☐☐☐☐☐

Sample Type: Grab ☐ Composite ☐

Date & Time of Sample: Begin (YYMMDD) 851216 HHM 091... End ☐☐☐☐☐☐

Frequency & Duration of Composite Sample ______

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umnos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,				
☒ Temperature, Water, °C	P10,	5.55 °C			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1-19	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-17	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD
☐ Acidity, Total $CaCO_3$, mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$, mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	3.13	12-23	KH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	12-18	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	12-17	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF #/100 ml	P31679,				
☐					

Comments: ATTN: Saul St Alvarez
DEF [illegible]
Rickenbacker ANGB
Columbus Ohio [illegible]

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ ... ☑ H_2SO_4 ☑ $CuSO_4$, H_3PO_4 ☑ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB, GREEN-PERM, CANARY-STOR, PINK-DISTRICT, GOLDENROD-DISTRICT

F-2

OEPA 4700

1142493

DIVISION OF WASTEWATER POLLUTION CONTROL Report – Chemistry Laboratory

...eived *31 Dec 85*
...eported *83-03-24*
...tion *Lockbourne*

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By *SAUL ST ALVAREZ*

Report Analysis To *SAUL ST ALVAREZ*

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Laboratory Number *23283*

Approved By: *SWP* SC, ☐☐☐☐☐☐

Sample Type: Grab ☐ Composite ☐

Date & Time of Sample: Begin (YYMMDD) 8 5 1 2 3 1 (HHMM) ☐☐☐☐ ; End ☐☐☐☐☐☐ ☐☐☐☐

Frequency & Duration of Composite Sample ______

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,				
☒ Temperature, Water, °C	P10,				
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As, ug/l	P1002,	<2	1/28	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	3-10	AL	
☒ Cadmium, Total Cd, ug/l	P1027,	2.0	1/24	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☒ Chromium, Hex Cr, ug/l	P1032,	N/A			
☐ Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-23	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☒ Mercury, Total Hg, ug/l	P71900,	N/A			
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	13	1/29	PS	
☒ Silver, Total Ag, ug/l	P1077,	N/A			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total CaCO₃ mg/l	P70508,				
☐ Alkalinity, Total CaCO₃ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☒ Fluoride, F, mg/l	P951,	N/A			
☐ Hardness, Total as $CaCO_3$, mg/l	P900,				
☒ Nitrate-Nitrite, as N, mg/l	P620,	0.44	1-7	AL	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	<1.0	1-9	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	10	1-5	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	*			
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4
☐ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LA, GREEN-PI, CANARY-S, PINK-DISTR., GOLDENROD-DISTRICT

F-24

Comments: *SAUL ST ALVAREZ*
Det 1/SGX
Rickenbacker ANGB Ohio
43217-5001
(614) 492-3132

** No NFR Sample Submitted ...*

OEPA 4700

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 31 Dec 85

Reported 86-03-24

Station STP

Laboratory Number 23282

Approved By: SWP SC, ☐☐☐☐☐☐.

Sample Type: Grab ☐ Composite ☐

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUL ST ALVAREZ

Date & Time of Sample: Y Y M M D D H H M M

Begin 8 5 1 2 3 1

End

Report Analysis To SAUL ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,				
☒ Temperature, Water, °C	P10,				
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As, ug/l	P1002,	2	1/28	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	3-10	HL	
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1/24	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☒ Chromium, Hex Cr, ug/l	P1032,	N/A			
☐ Chromium, Total Cr, ug/l	P1034,	<30	3-6	HL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1-23	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☒ Mercury, Total Hg, ug/l	P71900,	N/A			
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	<2	1/29	PS	
☒ Silver, Total Ag, ug/l	P1077,	N/A			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$, mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$, mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☒ Fluoride, F, mg/l	P951,	N/A			
☐ Hardness, Total as $CaCO_3$, mg/l	P900,				
☒ Nitrate-Nitrite, as N, mg/l	P620,	0.75	1-7	AL	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	<1.10	1-9	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	10	1-5	MA	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	*			
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF #/100 ml	P31679,				
☐					

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4

☐ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB GREEN-PERM CANARY-STORL PINK-DISTRICT GOLDENROD-DISTRICT

F-25

Comments: SAUL ST. ALVAREZ

Oct 1/84

Ricker Lake, ANG, Ohio

43214 5001

(614) 492-3132 (Water Analysis Submitter)

OEPA 4700

[redacted] DIVISION OF WASTEWATER POLLUTION CONTROL — Report – Chemistry Laboratory

Received 09 JAN 86
Reported 86-03-14
Station Lockbourne
Sample Type: Monthly [X] Compliance [ ] Litigation [ ] WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]
Sample Collected By SAUL ST ALVAREZ
Report Analysis To SAUL ST ALVAREZ
CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Laboratory Number 23309
Approved By: SWP SC, [ ][ ][ ][ ][ ][ ]
Sample Type: Grab [ ] Composite [ ]
Date & Time of Sample — Begin: Y Y M M D D = 8 6 0 1 0 9; H H M M = 0 8 0 8; End: [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ]
Frequency & Duration of Composite Sample _____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.2			
[X] Temperature, Water, °C	P10,	-1.11			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As, ug/l	P1002,	<2	1/28	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3/10	AL	
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	1/24	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[X] ~~Chromium, Hex Cr, ug/l~~	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	1-23	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[X] ~~Mercury, Total Hg, ug/l~~	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	<2	1/29	PS	
[X] Silver, Total Ag, ug/l	P1077,	*			
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,				
[X] ~~Nitrate-Nitrite, as N, mg/l~~	P620,				
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	F610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	5.37	1-9	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	1-14	SOW	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	1-10	BN	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF, #/100 ml	P31616,				
[ ] Fecal Strep, MF # / 100 ml	P31679,				
[ ]					

Comments: SAUL ST ALVAREZ
DOR: 1/56K
Rickenbacker ANGB Ohio
43217-5001
(614) 492-3132 *currently unavailable

PRESERVATIVES
[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P
[X] H_2SO_4 [ ] $CuSO_4$-H_3PO_4
[X] HNO_3 [ ] Other

DISTRIBUTION: WHITE-LAB, GREEN-PERM, CANARY-STORE, PINK-DISTRICT, GOLDENROD-DISTRICT

EPA 4700

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laborator

Received 09 JAN 86
Reported 86-03-13
Laboratory Number 23310
Approved By: SWP SC, ☐☐☐☐☐☐
Location Sewage treatment Plant
Sample Type: Grab ☐ Composite ☐
Sample Type Monthly ☒ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐
Sample Collected By SAUL ST ALVAREZ
Date & Time of Sample: Y Y M M D D H H M
Begin 8 6 0 1 0 9 0 8 0
End
Report Analysis To SAUL ST ALVAREZ
CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐
Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	8.0			
☒ Temperature, Water, °C	P10,	5.56			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As, ug/l	P1002,	<2	1/28	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	3.10	AL	
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	1/24	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☒ ~~Chromium, Hex Cr, ug/l~~	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	3.6	AL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	1/23	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☒ ~~Mercury, Total Hg, ug/l~~	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	<2	1/29	PS	
☒ Silver, Total Ag, ug/l	P1077,	*			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium.	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☒ ~~Nitrate-Nitrite, as N, mg/l~~	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	<1.0	1-9	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	1-14	GK	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	1-10	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: SAUL ST ALVAREZ
Dept/SGK
Lockenbacker ANGB Ohio

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_2PO_4
☐ HNO_3 ☐ Other

DISTRIBUTION: WHITE-LAB
GREEN-PERI
CANARY-STO
PINK-DISTRICT
GOLDENROD-DISTRICT

OEPA 4700
(614) 492-3132 43217 500k *currently unavailable

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

...ed 23 JAN 86
...orted 86-03-13
Lockbourne (LB)

...ple Type: Monthly [X] Compliance [ ] Litigation [ ] WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]

Sample Collected By SAUL ST ALVAREZ

Report Analysis To SAUL ST ALVAREZ

CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Laboratory Number 23334

Approved By: SWP SC, [ ][ ][ ][ ][ ][ ]

Sample Type: Grab [X] Composite [ ]

Date & Time of Sample — Begin (YYMMDD) 860123 (HHMM) [ ][ ][ ][ ]; End [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ]

Frequency & Duration of Composite Sample ______

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.5			
[X] Temperature, Water, °C	P10,	3.33°C			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As, ug/l	P1002,	<2	1/28	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3-10	AL	
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	1/24	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	1/30	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	<2	1/29	PS	
[X] Silver, Total Ag, ug/l	P1077,	*			
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[X] ~~Fluoride, F, mg/l~~	P951,				
[ ] Hardness, Total as $CaCO_3$ mg/l	P900,				
[X] Nitrate-Nitrite, as N, mg/l	P620,	0.58	2-4	AL	
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	<1.0	1-27	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	1-30	SBN	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	1-27	BN	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF, #/100 ml	P31616,				
[ ] Fecal Strep, MF # / 100 ml	P31679,				
[ ]					

PRESERVATIVES

[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P
[X] H_2SO_4 [X] $CuSO_4$ H_3PO_4
[X] HNO_3 [ ] Other

Comments: SAUL ST ALVAREZ
Det 1/56X
Rickenbacker ANGB 0618
(614) 492-3132

*unavailable at this time.

DISTRIBUTION: WHITE-LA
GREEN-PE
CANARY-STL
PINK-DISTRICT
GOLDENROD-DISTRICT

F-28

OEPA 4700

DIVISION OF WASTEWATER POLLUTION CONTROL — Report – Chemistry Laborat...

23 JAN 86

...ed 86-03-13

Sewage Treatment Plant (STP)

Monthly [X] Compliance ☐ Litigation ☐

...ple Type WQPA Survey ☐ Complaint ☐ B–WQ Survey ☐

...ample Collected By SAUL ST ALVAREZ

Report Analysis To SAUL ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Laboratory Number 23335

Approved By: SWP SC, ☐☐☐☐☐☐

Sample Type: Grab [X] Composite ☐

Date & Time of Sample — YYMMDD HHM — Begin 8 6 0 1 2 3 — End

Frequency & Duration of Composite Sample ______

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
[X] pH, SU	P400,	7.8			
[X] Temperature, Water, °C	P10,	4.44°C			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As, ug/l	P1002,	<2	1/28	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3-10	AL	
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	1/24	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	1/30	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	<2	1/29	PS	
[X] Silver, Total Ag, ug/l	P1077,	*			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
[X] ~~Fluoride, F, mg/l~~	P951,				
☐ Hardness, Total as $CaCO_3$ mg/l	P900,				
[X] Nitrate-Nitrite, as N, mg/l	P620,	1.61	2-4	AL	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	<1.0	1-27	RH	
☐ pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	1-30	SBW	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	<5	1-27	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF #/100 ml	P31679,				
☐					

Comments: SAUL ST ALVAREZ
Det 1 / SEX
Rickenbacker ANGB OHIO
(614) 492-3132 *currently unavailable

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
[X] H_2SO_4 ☐ $CuSO_4$ H_3PO_4
[X] HNO_3 ☐ Other

DISTRIBUTION: WHITE-LA... GREEN-PE... CANARY-ST... PINK-DISTRICT GOLDENROD-DISTRICT

F-29

OEPA 4700

[redacted] DIVISION OF WASTEWATER POLLUTION CONTROL — Report – Chemistry Laboratory

Received 04 Feb 86
Reported ~~04 Feb 86~~ 86-03-13
Station Lock house
Sample Type: Monthly [X] Compliance [ ] Litigation [ ] WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]
Sample Collected By SAUL ST ALVAREZ
Report Analysis To SAUL ST ALVAREZ
CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Laboratory Number 23350
Approved By: SWP SC, [ ][ ][ ][ ][ ][ ].
Sample Type: Grab [X] Composite [ ]
Date & Time of Sample: Begin Y Y M M D D = 8 6 0 2 0 4, H H M M = 0 7 0 7; End [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ]
Frequency & Duration of Composite Sample ____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.4			
[X] Temperature, Water, °C	P10,	4.44			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As, ug/l	P1002,	<2	2/7	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3 10	AL	
[ ] Cadmium, Total Cd, ug/l	P1027,				
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3-6	AL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	3	2/12	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	<2x5	2/10	PS	
[X] Silver, Total Ag, ug/l	P1077,	**			
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,				
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,				
[ ] BOD, 5-day, mg/l	P310,				
[ ] cBOD, 5 Day, mg/l	P80082,				
[ ] BOD, 20 Day, mg/l	P324,				
[ ] cBOD, 20 Day, mg/l	P80087,				
[ ] MBAS, mg/l	P38260,				
[ ] Carbon, Total Org., mg/l	P680,				
[ ] COD, mg/l	P335,				
[ ] Chloride, Cl, mg/l	P940,				
[ ] Conductivity at 25°C, umhos/cm	P95,				
[ ] Cyanide, Total, mg/l	P720,				
[ ] Fluoride, F, mg/l	P951,				
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,				
[X] Nitrate-Nitrite, as N, mg/l	P620,	0.58	2-6	AL	
[ ] Nitrite, as N, mg/l	P615,				
[ ] Nitrogen, Ammonia as N, mg/l	P610,				
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,				
[X] Oil and Grease, mg/l	P556,	<1.0	2-4	RH	
[ ] pH, SU	P403,				
[X] Phenolics, ug/l	P32730,	<10	2/13	SOW	
[ ] Phosphorus, Diss. P, mg/l	P666,				
[ ] Phosphorus, Total P, mg/l	P665,				
[ ] Residue, Total, mg/l	P550,				
[ ] Residue, Total Flt, mg/l	P70300,				
[X] Residue, Total Nflt, mg/l	P530,	13	2-7	BN	
[ ] Silica, Dissolved, mg/l	P955,				
[ ] Sulfate, SO_4, mg/l	P945,				
[ ]					
[ ]					
MICROBIOLOGY					
[ ] Fecal Coliform, MF, #/100 ml	P31616,				
[ ] Fecal Strep, MF # / 100 ml	P31679,				
[ ]					

Comments: ATTN: SAUL ST ALVAREZ
Received late — DeFt/SGK
Rickenbacker ANGB
Ohio 43217-5001

PRESERVATIVES
[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P [ ] H_2SO_4 [ ] $CuSO_4$-H_3PO_4 [ ] HNO_3 [ ] Other

DISTRIBUTION: WHITE-LAB GREEN-P CANARY- PINK-DIST. GOLDENROD-DISTRICT

EPA 4700 PLIN 442-3132

F-30

[redacted]ON OF WASTEWATER POLLUTION CONTROL — Report – Chemistry Laborato

[redacted]rted 04 Feb 86 — Laboratory Number 23349

[redacted]rted 04 Feb 86 0-03-13 — Approved By: SWP SC, ☐☐☐☐☐☐

Water Treatment Plant (STP) — Sample Type: Grab ☒ Composite ☐

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUC ST ALVAREZ

Date & Time of Sample: Begin Y Y M M D D H H M — 8 6 0 2 0 4 — End

Report Analysis To SAUC ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐ — Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.5			
☒ Temperature, Water, °C	P10,	4.44			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As.ug/l	P1002,	<2	2/7	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	2/10	HL	
☐ Cadmium, Total Cd, ug/l	P1027,				
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<2	2/6	HL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss. Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	4	2/12	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	<2 x 2	2/10	PS	*
☒ Silver, Total Ag, ug/l	P1077,	**			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

ATTN: SAUC ST ALVAREZ

Comments:

** currently Det 1/SGX unavailable. Rockenbaker ANGB 440 143217

Preserved at lab *diluted 1:2 to achieve good spike recovery

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☒ Nitrate-Nitrite, as N, mg/l	P620,	0.82	2-6	AL	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	<1.0	2-4	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	2.13	SBW	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☒ Residue, Total Flt, mg/l	P70300,	174	2-7	BM	
☐ Residue, Total Nflt, mg/l	P530,				
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4

☐ HNO_3 ☐ Other

Jan 0+G

DISTRIBUTION: WHITE-LAP GREEN-F CANARY PINK-DI GOLDEN-RICT

OEPA 4700

[redacted] DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 27 Feb 86

Reported 86-03-25

Laboratory Number 23403

Approved By: SWP SC, ☐☐☐☐☐☐

Station LOCK BOURNE

Sample Type: Grab ☒ Composite ☐

Sample Type: Monthly ☒ Compliance ☐ Litigation ☐ WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUL ST ALVAREZ

Date & Time of Sample: Y Y M M D D / H H M M

Begin 8 6 0 2 2 7 / 0 9 4 5

End ☐☐☐☐☐☐ / ☐☐☐☐

Report Analysis To SAUL ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.5			
☒ Temperature, Water, °C	P10,	2.7°			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As, ug/l	P1002,	<2	3/12	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	3/13	NL	
☒ Cadmium, Total Cd, ug/l	P1027,	0.3	3/11	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	3/22	NL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	3/10	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	6	2/28	PS	
☒ Silver, Total Ag, ug/l	P1077,	N/A			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$, mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$, mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$, mg/l	P900,				
☒ Nitrate-Nitrite, as N, mg/l	P620,	0.80	3-12	BK	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	3.31	2-[illegible]	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	3.8	SBW	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,				
☐ Silica, Dissolved, mg/l	P955,	.7	2-28	BN	
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☒ H_2SO_4 ☐ $CuSO_4$-H_3PO_4

☐ HNO_3 ☒ Other

DISTRIBUTION: WHITE GREE CANA PINK-L GOLDEN. DISTRICT

Comments: SAUL ST ALVAREZ

Incinerator Dept. 1/SGX

Rickenbacker AFB OHIO 43217-5001

OEPA 4700 (614) 492-3132

[redacted] DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Laboratory

Received 27 Feb 86

Reported 86-03-25

Laboratory Number 23402

Approved By: SWP SC, ☐☐☐☐☐☐

Station Sewage treatment Plant

Sample Type: Grab ☒ Composite ☐

Sample Type Monthly ☒ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUL ST ALVAREZ

Date & Time of Sample: Y Y M M D D H H M M

Begin 8 6 0 2 2 7 1 0 1 0

End ☐☐☐☐☐☐ ☐☐☐☐

Report Analysis To SAUL ST ALVAREZ

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample _____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.9			
☒ Temperature, Water, °C	P10,	4.4°C			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☒ Arsenic, Total As, ug/l	P1002,	<2	3/12	PS	
☒ Barium, Total Ba, ug/l	P1007,	<200	3 13	HL	
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	3/11	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	3 20	HL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	3/10	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☒ Selenium, Total Se, ug/l	P1147,	<2	2/28	PS	
☒ Silver, Total Ag, ug/l	P1077,	N/A			
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P9[illegible],				
☐ Hardness, Total as $CaCo_3$, mg/l	P900,				
☒ Nitrate-Nitrite, as N, mg/l	P620,	2.00	3 12	BK	
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	309	2 21	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	3·8	SBW	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	2-28	BN	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: SAUL ST ALVAREZ
Received at lab Def 1/SGX
Rickenbacker ANGB
Ohio 43217-5001
(614) 492-3132

PRESERVATIVES

☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P

☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4

☐ HNO_3 ☐ Other jar

DISTRIBUTION: WHITE-LAB GREEN-PERS CANARY-STOR PINK-DISTRICT GOLDENROD-DISTRICT

OEPA 4700

OHIO AIR NATIONAL GUARD
DETACHMENT 1, HEADQUARTERS OHIO AIR NATIONAL GUARD
RICKENBACKER AIR NATIONAL GUARD BASE, OHIO 43217-5001

REPLY TO
ATTN OF: DEE

16 May 1986

SUBJECT: NPDES Permit Reports

TO: Technical Records
Ohio EPA
P.O. Box 1049
Columbus, OH 43216-1049

The attached NPDES permit reports for March 1986 are forwarded for your review. Summary of deficiencies and comments are as follows:

a. Permits OH 0007838-0001 and 0002, March 1986, show high levels of suspended solids. This was due to high amount of rainfall, drizzle and snow in the four preceeding days before samples were taken.

SIGNED

ALAN C. FRIEDSTROM, PE
Chief of Engineering

2 Atchs
1. EPA-4500, Permit 0007838-0001, March 1986
2. EPA-4500, Permit 0007838-0002, March 1986

[redacted]HLY REPORT FORM

REPORTED

USEPA

[redacted]DDRESS, CITY, COUNTY ZIP | STATION CODE | DATE MONTH YEAR | PAGE OF | PRINTING DATE | APPLICATION N

[redacted]SS. [redacted]
[redacted]HIO AIR NATIONAL [redacted]
[redacted]OINT COMBAT SUPPORT GROUP
PICKAWAY AIR FORCE BASE

SAMPLING STATION DESCRIPTION

[redacted]

NOTE: THIS FORM MUST BE TY

IN(1) ENTER 1 FOR CONTINUOUS 2 FOR COMPOSITE 3 FOR GRAB SAMPLE
IN(2) ENTER FREQUENCY OF SAMPLING

REPORTING LAB Ohio EPA Wastewater Lab

ANALYST

	(1)	2	2	2	2	2	2				
	(2)	2	2	2	2	2	2				
		[redacted]	[redacted] T. DEL MG/L	[redacted] TOTAL MG/L	[redacted] CHEM OXY DEM, TOT MG/L	[redacted] PHOSPHORUS, TOT MG/L	[redacted] PHOSPHORUS, TOT MG/L				
DAY		REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE
01											
02											
03											
04											
05											
06											
07		7.8	495	2.25	<30	<2	<10				
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26		7.9	5	1.10	<30	<2	<10				
27											
28											
29											
30											
31											
TOTAL											
AVG.		7.75	350	1.58	<30	<2	<10				
MAX.		7.7	495	2.25	<30	<2	<10				
MIN.		7.3	<5	1.10	<30	<2	<10				

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

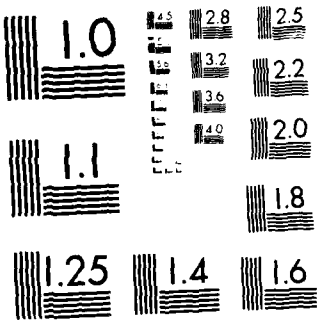
ORM NO. EPA-4500 (10-80)
ORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED O[redacted] THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONME[redacted]

DATE REPORT COMPLETED	SIGNATURE	TITLE OF REPORTER
16 May 86	SIGNED	CHIEF OF ENGINEERING

AD-A195 268 INSTALLATION RESTORATION PROGRAM PHASE 1 RECORDS SEARCH FOR THE OHIO NATI.. (U) HAZARDOUS MATERIALS TECHNICAL CENTER ROCKVILLE MD JUN 87 DLA900-82-C-4426 3/3

UNCLASSIFIED F/G 24/3 NL



REPORTER COPY

HLY REPORT FORM

REPORTED

Ohio E

ADDRESS, CITY, COUNTY, ZIP	STATION CODE	DATE (MONTH, YEAR)	PAGE	PRINTING DATE	APPLI
U.S. DEPT. OF THE AIR FORCE OPIS AIR NATIONAL GUARD SOICT COMBAT SUPPORT GROUP RICKENBACKER AIR FORCE BASE, OHIO DISCHARGE PRIOR WALNUT CRK LOCATE CURVE 43217 FRANKLIN	47 00000032	MAR 1986	OF 1	04/25/86	

NOTE: THIS FORM

IN(1) - ENTER 1 FOR CONTINUOUS, 2 FOR COMPOSITE, 3 FOR GRAB SAMPLE
IN(2) - ENTER FREQUENCY OF SAMPLING

REPORTING LAB: Ohio EPA Wastewater Lab

ANALYST:

ENTER ANALYSES PERFORMED AND CODE NO. AT RIGHT											
(1)	2	2	2	2	2	2					
(2)	2	2	2	2	2	2					
	PH S.U.	RESIDU T. TFL MG/L	O&G TOTAL MG/L	CAD TOT UG/L	PHENOL 4AAP TOTAL	CONDUT FLOW MGD					
	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	REPORTING CODE	
DAY	00400	00530	00550	01027	32730	50050					
01											
02											
03											
04											
05											
06											
07	7.6	428	<1	<0.2	<10	N/A					
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26	7.8	6	1.20	<0.2	<10	N/A					
27											
28											
29											
30											
31											
TOTAL											
AVG.	7.7	217	1.1	<0.2	<10	N/A					
MAX.	7.6	428	1.2	<0.2	<10	N/A					
MIN.	7.8	6	<1	<0.2	<10	N/A					

ADDITIONAL REMARKS (AH REPORTING CODES MUST BE EXPLAINED IN THIS SECTION)

DISTRIBUTION
WHITE - AGENCY
YELLOW - AGENCY
GREEN - REPORTER

FORM NO. EPA-4500 (10-80)
FORMERLY EPA-SUR-1

I CERTIFY UNDER THE PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED AND BASED ON THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND C AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

DATE REPORT COMPLETED	SIGNATURE	TITLE OF REPORTER
16 May 86	SIGNED	CHIEF OF ENGINEERIN

[redacted]EPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry La

Date Received 07 MARCH 86
Date Reported 86-03-24
Station LOCKBOURNE
Sample Type Monthly [X] Compliance [ ] Litigation [ ]
WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]
Sample Collected By Peter Stewart
Report Analysis To SAUL ST ALVAREZ
CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Laboratory Number 23411
Approved By: SWP SC, [ ][ ][ ][ ]
Sample Type: Grab [X] Composite [ ]
Date & Time of Sample: Y Y M M D D H
Begin 8 6 0 3 0 7 0 [illegible]
End [ ][ ][ ][ ][ ][ ] [ ][ ]
Frequency & Duration of Composite Sample ____

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.8			
[X] Temperature, Water, °C	P10,	1.7° C			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As ug/l	P1002,	<2	3/12	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3/13	HL	
[X] Cadmium, Total Cd, ug/l	P1027,	0.3	3/11	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<10	3/22	HL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	3/10	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	6	3/18	PS	
[X] Silver, Total Ag, ug/l	P1077,	N/A			
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,		
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,		
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[ ] cBOD, 5 Day, mg/l	P80082,		
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[ ] cBOD, 20 Day, mg/l	P80087,		
[ ] MBAS, mg/l	P38260,		
[ ] Carbon, Total Org., mg/l	P680,		
[ ] COD, mg/l	P335,		
[ ] Chloride, Cl, mg/l	P940,		
[ ] Conductivity at 25°C, umhos/cm	P95,		
[ ] Cyanide, Total, mg/l	P720,		
[ ] Fluoride, F, mg/l	P951,		
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,		
[X] Nitrate-Nitrite, as N, mg/l	P620,	1.76	3-12
[ ] Nitrite, as N, mg/l	P615,		
[ ] Nitrogen, Ammonia as N, mg/l	P610,		
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,		
[X] Oil and Grease, mg/l	P556,	2.25	3-17
[ ] pH, SU	P403,		
[X] Phenolics, ug/l	P32730,	<10	3-18
[ ] Phosphorus, Diss. P, mg/l	P666,		
[ ] Phosphorus, Total P, mg/l	P665,		
[X] Residue, Total, mg/l	P550,	495	3-12
[ ] Residue, Total Flt, mg/l	P70300,		
[ ] Residue, Total Nflt, mg/l	P530,		
[ ] Silica, Dissolved, mg/l	P955,		
[ ] Sulfate, SO_4, mg/l	P945,		
[ ]			
[ ]			
MICROBIOLOGY			
[ ] Fecal Coliform, MF, #/100 ml	P31616,		
[ ] Fecal Strep, MF # / 100 ml	P31679,		
[ ]			

Comments: SAUL ST ALVAREZ
11/SGX
[illegible] ANGB Ohio REC
Samples frozen when
43217-5001
[illegible] 4952123

PRESERVATIVES
[ ] NaOH [ ] $K_2Cr_2O_7$ [X] N/P
[X] H_2SO_4 [ ] $CuSO_4$-H_2PO_4
[X] HNO_3 [ ] Other

DISTRIBUTION: WHITE-LAB GREEN-PERM CANARY-STOR PINK-DISTRICT GOLDENROD-

OEPA 4700

EPA DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry La

Received 07 March 86

Reported 86-03-27

Laboratory Number 23

Approved By: SWP SC, [ ]

Station SEWAGE Treatment Plant

Sample Type: Grab [X] Composite [ ]

Sample Type Monthly [X] Compliance [ ] Litigation [ ]
WQPA Survey [ ] Complaint [ ] B-WQ Survey [ ]

Sample Collected By Peter Stewart

Date & Time of Sample: Y Y M M D D H

Begin 8 6 0 3 0 7 0

End

Report Analysis To SAUK ST ALLIANCE

CO [ ] NEDO [ ] NWDO [ ] SEDO [ ] SWDO [ ] CDO [ ] WQPA [ ]

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
[ ] Chlorine, Free Avl., mg/l	P50064,				
[ ] Chlorine, Total Resd., mg/l	P50060,				
[ ] Conductivity, umhos/cm	P94,				
[ ] Dissolved Oxygen, mg/l	P299,				
[ ] Flow, CFS	P61,				
[X] pH, SU	P400,	7.6			
[X] Temperature, Water, °C	P10,	11.1 °C			
[ ] Gage Height, ft.	P65,				
[ ]					
[ ]					
METALS					
[ ] Aluminum, Total Al, ug/l	P1105,				
[X] Arsenic, Total As, ug/l	P1002,	<2	3/12	PS	
[X] Barium, Total Ba, ug/l	P1007,	<200	3-13	AL	
[X] Cadmium, Total Cd, ug/l	P1027,	<0.2	3/11	PS	
[ ] Calcium, Total Ca, mg/l	P916,				
[ ] Chromium, Hex Cr, ug/l	P1032,				
[X] Chromium, Total Cr, ug/l	P1034,	<30	3 22	AL	
[ ] Copper, Total Cu, ug/l	P1042,				
[ ] Iron, Diss, Fe, ug/l	P1046,				
[ ] Iron, Total Fe, ug/l	P1045,				
[X] Lead, Total Pb, ug/l	P1051,	<2	3/10	PS	
[ ] Magnesium, Total Mg, mg/l	P927,				
[ ] Manganese, Total Mn, ug/l	P1055,				
[ ] Mercury, Total Hg, ug/l	P71900,				
[ ] Nickel, Total Ni, ug/l	P1067,				
[ ] Potassium, Total K, mg/l	P937,				
[X] Selenium, Total Se, ug/l	P1147,	<2	3/18	PS	
[X] Silver, Total Ag, ug/l	P1077,	N/A			
[ ] Sodium, Total Na, mg/l	P929,				
[ ] Strontium	P1082,				
[ ] Zinc, Total, ug/l	P1092,				
[ ]					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED
[ ] Acidity, Total $CaCO_3$ mg/l	P70508,		
[ ] Alkalinity, Total $CaCO_3$ mg/l	P410,		
[ ] BOD, 5-day, mg/l	P310,		
[ ] cBOD, 5 Day, mg/l	P80082,		
[ ] BOD, 20 Day, mg/l	P324,		
[ ] cBOD, 20 Day, mg/l	P80087,		
[ ] MBAS, mg/l	P38260,		
[ ] Carbon, Total Org., mg/l	P680,		
[ ] COD, mg/l	P335,		
[ ] Chloride, Cl, mg/l	P940,		
[ ] Conductivity at 25°C, umhos/cm	P95,		
[ ] Cyanide, Total, mg/l	P720,		
[ ] Fluoride, F, mg/l	P951,		
[ ] Hardness, Total as $CaCo_3$ mg/l	P900,		
[X] Nitrate-Nitrite, as N, mg/l	P620,	3.12	3-12
[ ] Nitrite, as N, mg/l	P615,		
[ ] Nitrogen, Ammonia as N, mg/l	P610,		
[ ] Nitrogen, Total Kjeldahl, mg/l	P625,		
[X] Oil and Grease, mg/l	P556,	<1	3-17
[ ] pH, SU	P403,		
[X] Phenolics, ug/l	P32730,	<10	3-8
[ ] Phosphorus, Diss. P, mg/l	P666,		
[ ] Phosphorus, Total P, mg/l	P665,		
[X] Residue, Total, mg/l	P550,	428	3-12
[ ] Residue, Total Flt, mg/l	P70300,		
[ ] Residue, Total Nflt, mg/l	P530,		
[ ] Silica, Dissolved, mg/l	P955,		
[ ] Sulfate, SO_4, mg/l	P945,		
[ ]			
[ ]			
MICROBIOLOGY			
[ ] Fecal Coliform, MF, #/100 ml	P31616,		
[ ] Fecal Strep, MF # / 100 ml	P31679,		
[ ]			

Comments: SAUK ST ALLIANCE

ANGB, Ohio

45217-5001

OEP

PRESERVATIVES

[ ] NaOH [ ] $K_2Cr_2O_7$ [ ] N/P

[X] H_2SO_4 [X] $CuSO_4$-H_3PO_4

[X] HNO_3 [ ] Other

DISTRIBUTION: WHITE-LAB
GREEN-PERA
CANARY-STOR
PINK-DISTRICT
GOLDENROD-D

[redacted]EPA **DIVISION OF WASTEWATER POLLUTION CONTROL** Report – Chemistry Laborato

Date Received 86-03-26 Laboratory Number 23441

Date Reported ~~26 March 86~~ 86-04-28 Approved By: SWP SC, ☐☐☐☐☐☐

Station LOCKBOURNE Sample Type: Grab ☒ Composite ☐

Sample Type Monthly ☒ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUL ST ALVAREZ

Report Analysis To SAUL ST ALVAREZ

Date & Time of Sample — Y Y M M D D H H M
Begin 8 6 0 3 2 6 ☐☐☐
End ☐☐☐☐☐☐ ☐☐☐

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐ Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.7			
☐ Temperature, Water, °C	P10,	10°			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	4/8	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	4-14	HL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss, Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	4-10	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD
☐ Acidity, Total $CaCO_3$ mg/l	P70508,				
☐ Alkalinity, Total $CaCO_3$ mg/l	P410,				
☐ BOD, 5-day, mg/l	P310,				
☐ cBOD, 5 Day, mg/l	P80082,				
☐ BOD, 20 Day, mg/l	P324,				
☐ cBOD, 20 Day, mg/l	P80087,				
☐ MBAS, mg/l	P38260,				
☐ Carbon, Total Org., mg/l	P680,				
☐ COD, mg/l	P335,				
☐ Chloride, Cl, mg/l	P940,				
☐ Conductivity at 25°C, umhos/cm	P95,				
☐ Cyanide, Total, mg/l	P720,				
☐ Fluoride, F, mg/l	P951,				
☐ Hardness, Total as $CaCo_3$ mg/l	P900,				
☐ Nitrate-Nitrite, as N, mg/l	P620,				
☐ Nitrite, as N, mg/l	P615,				
☐ Nitrogen, Ammonia as N, mg/l	P610,				
☐ Nitrogen, Total Kjeldahl, mg/l	P625,				
☒ Oil and Grease, mg/l	P556,	1.10	4-3	RH	
☐ pH, SU	P403,				
☒ Phenolics, ug/l	P32730,	<10	4-7	SBW	
☐ Phosphorus, Diss. P, mg/l	P666,				
☐ Phosphorus, Total P, mg/l	P665,				
☐ Residue, Total, mg/l	P550,				
☐ Residue, Total Flt, mg/l	P70300,				
☒ Residue, Total Nflt, mg/l	P530,	<5	3-27	BW	
☐ Silica, Dissolved, mg/l	P955,				
☐ Sulfate, SO_4, mg/l	P945,				
☐					
☐					
MICROBIOLOGY					
☐ Fecal Coliform, MF, #/100 ml	P31616,				
☐ Fecal Strep, MF # / 100 ml	P31679,				
☐					

Comments: SAUL ST ALVAREZ
Det 1/56X
Rickenbacker ANGB Ohio
43217-5001

PRESERVATIVES
☐ NaOH ☐ $K_2Cr_2O_7$ ☐ N/P
☐ H_2SO_4 ☐ $CuSO_4$-H_3PO_4
☐ HNO_3 ☐ Other

DISTRIBUTION: WHITE-L/ GREEN-P CANARY-S PINK-DISTRI. GOLDENROD-DISTRIC

OEPA 4700 [redacted] F-39

DIVISION OF WASTEWATER POLLUTION CONTROL

Report – Chemistry Labo

Received 86-03-26 Laboratory Number 2344(

Reported SAUC 86-04-28 Approved By: SWP SC. ☐☐☐☐☐

Station Sewage Treatment Plant Sample Type: Grab ☒ Composite ☐

Sample Type Monthly ☒ Compliance ☐ Litigation ☐
WQPA Survey ☐ Complaint ☐ B-WQ Survey ☐

Sample Collected By SAUC ST Personnel

Date & Time of Sample: Y Y M M D D H H
Begin 8 6 0 3 2 6
End

Report Analysis To SAUC ST ACTUAL

CO ☐ NEDO ☐ NWDO ☐ SEDO ☐ SWDO ☐ CDO ☐ WQPA ☐

Frequency & Duration of Composite Sample

PARAMETER	STORET CODE	RESULTS	DATE ANALYZED	ANALYST	METHOD CODE
FIELD MEASUREMENTS					
☐ Chlorine, Free Avl., mg/l	P50064,				
☐ Chlorine, Total Resd., mg/l	P50060,				
☐ Conductivity, umhos/cm	P94,				
☐ Dissolved Oxygen, mg/l	P299,				
☐ Flow, CFS	P61,				
☒ pH, SU	P400,	7.8			
☒ Temperature, Water, °C	P10,	11.1			
☐ Gage Height, ft.	P65,				
☐					
☐					
METALS					
☐ Aluminum, Total Al, ug/l	P1105,				
☐ Arsenic, Total As, ug/l	P1002,				
☐ Barium, Total Ba, ug/l	P1007,				
☒ Cadmium, Total Cd, ug/l	P1027,	<0.2	4/8	PS	
☐ Calcium, Total Ca, mg/l	P916,				
☐ Chromium, Hex Cr, ug/l	P1032,				
☒ Chromium, Total Cr, ug/l	P1034,	<30	4-14	HL	
☐ Copper, Total Cu, ug/l	P1042,				
☐ Iron, Diss. Fe, ug/l	P1046,				
☐ Iron, Total Fe, ug/l	P1045,				
☒ Lead, Total Pb, ug/l	P1051,	<2	4-10	PS	
☐ Magnesium, Total Mg, mg/l	P927,				
☐ Manganese, Total Mn, ug/l	P1055,				
☐ Mercury, Total Hg, ug/l	P71900,				
☐ Nickel, Total Ni, ug/l	P1067,				
☐ Potassium, Total K, mg/l	P937,				
☐ Selenium, Total Se, ug/l	P1147,				
☐ Silver, Total Ag, ug/l	P1077,				
☐ Sodium, Total Na, mg/l	P929,				
☐ Strontium	P1082,				
☐ Zinc, Total, ug/l	P1092,				
☐					

NON-METALS	STORET CODE	RESULTS	DATE ANALYZED	ANALYST
☐ Acidity, Total $CaCO_3$, mg/l	P70508,			
☐ Alkalinity, Total $CaCO_3$, mg/l	P410,			
☐ BOD, 5-day, mg/l	P310,			
☐ cBOD, 5 Day, mg/l	P80082,			
☐ BOD, 20 Day, mg/l	P324,			
☐ cBOD, 20 Day, mg/l	P80087,			
☐ MBAS, mg/l	P38260,			
☐ Carbon, Total Org., mg/l	P680,			
☐ COD, mg/l	P335,			
☐ Chloride, Cl, mg/l	P940,			
☐ Conductivity at 25°C, umhos/cm	P95,			
☐ Cyanide, Total, mg/l	P720,			
☐ Fluoride, F, mg/l	P951,			
☐ Hardness, Total as $CaCO_3$, mg/l	P900,			
☐ Nitrate-Nitrite, as N, mg/l	P620,			
☐ Nitrite, as N, mg/l	P615,			
☐ Nitrogen, Ammonia as N, mg/l	P610,			
☐ Nitrogen, Total Kjeldahl, mg/l	P625,			
☒ Oil and Grease, mg/l	P556,	1.20	4-3	RH
☐ pH, SU	P403,			
☒ Phenolics, ug/l	P32730,	<10	4-7	SBW
☐ Phosphorus, Diss. P, mg/l	P666,			
☐ Phosphorus, Total P, mg/l	P665,			
☐ Residue, Total, mg/l	P550,			
☐ Residue, Total Flt, mg/l	P70300,			
☒ Residue, Total Nflt, mg/l	P530,	6	3-27	BM
☐ Silica, Dissolved, mg/l	P955,			
☐ Sulfate, SO_4, mg/l	P945,			
☐				
☐				
MICROBIOLOGY				
☐ Fecal Coliform, MF, #/100 ml	P31616,			
☐ Fecal Strep, MF # / 100 ml	P31679,			
☐				

Comments: SAUC ST ACTUAL

Det 1/SGX
Rickenbacker ANGB OH
43217-5

PRESERVATIVES
☐ NaOH ☐ KCr_2O_7 ☐ N/P ☐
☒ H_2SO_4 ☐ CuSO, H_3PO_4
☒ HNO_3 ☐

DISTRIBUTION: WHT GRE CAN PINK GOLD

EPA 4700

F-40


DAT
FILM
8